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Brunswick

Natural Resources and Energy
Minerals and Energy

Mineral Resource Report

New Brunswick's Mineral Industry
2000

Edited by
Barbara M.W. Carroll

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New Brunswick's Mineral Industry
2000

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Minerals and Energy Division
Department of Natural Resources and Energy
Province of New Brunswick

Hon. Jeannot Volpé
Minister of Natural Resources and Energy

November, 2001

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New Nouveau
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2001

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SUMMARY

The Minerals and Energy Division of the New Brunswick Department of Natural Resources and Energy manages the mineral resources owned by the Crown. Responsibilities include conducting basic geoscientific studies, maintaining scientific and technical data to aid mineral exploration, developing mineral management policies, issuing licences and leases, administering acts and regulations related to minerals and mining, and monitoring mining activities. Staff geologists and engineers work with other government departments, companies, and organizations on matters related to forestry, environment, and construction. The division published approximately 45 maps and 22 reports in 2000.

The Recorder received 91 mineral exploration reports of work during 2000. Prospectors, and exploration and mining companies recorded 3084 claims, mainly in search of zinc, lead, copper, and gold.

The focus of exploration in northern New Brunswick was base metals. Noranda Inc. and Hudson Bay Exploration and Development Co. Limited reported the largest amount of exploration. Diamond drilling was carried out on a number of properties. Trenching and geophysical surveys were also conducted on some properties. Precious metals and base-metal sulphides were the focus of exploration in southern New Brunswick. Most activity was related to the expansion of resources on known gold properties and the search for new gold occurrences in the southwestern part of the province. Recently, the potential for substantial gold deposits associated with Sn–W-bearing granites has been demonstrated. Gold may also be associated with granite of the Pokiok Batholith. Much interest has been shown in these and other areas in the region that may host additional intrusion-related gold occurrences. In addition, there was interest in the Province's limestone, aggregate, dimension stone, silica, and peat resources.

J.A. Seglund Inc., RHT Enterprises Ltd., Columbia Natural Resources Canada, Inc./MariCo Oil and Gas Corporation, Corridor Resources Inc. and Jean Mariadassou held oil and natural gas licences to search in 2000. Irving Oil Limited, RHT Enterprises Ltd., and J.A. Seglund Inc. held oil and natural gas leases. A.A. (N.B.) Inc. held two bituminous shale development permits. St. Clair Pipelines (1996) Ltd. and Intragaz held one and six underground storage licences, respectively.

During the year, there was one producing metal mine and 97 producing nonmetal mines, including 34 peatlands and approximately 50 mineral aggregate pits and quarries on Crown and private land. One company was involved in coal production. Operations remained suspended at the Caribou and Restigouche mines (CanZinco Ltd.), the Murray Brook mine (Murray Brook Resources Inc.), the Lake George mine (APOCAN Inc.), and the Mount Pleasant mine (Adex Mining Inc.).

The value of New Brunswick's mineral production for 2000 was $790 573 087, a 7% decrease from the 1999 figure ($848 536 514). The value of production for metals and structural materials decreased by 12% and 14%, respectively, while the value of nonmetal and fuels production increased by 10 and 16%, respectively. Compared to mineral production in other Canadian provinces, New Brunswick's production ranked first in zinc, lead, bismuth and peat; and second in antimony and silver. New Brunswick is the only producer of marl.

SOMMAIRE

La Division des ressources minières et de l'énergie du ministère des Ressources naturelles et de l'Énergie du Nouveau-Brunswick est chargée de la gestion des ressources minérales de la Couronne. Parmi les responsabilités de cette division, on note les levés géoscientifiques de base, le maintien à jour des données scientifiques et techniques servant à la prospection minière, l'élaboration de politiques de gestion minière, la délivrance de permis et de baux, l'administration des lois et des règlements relatifs aux minéraux et aux mines ainsi que le contrôle des activités minières. Les géologues et les ingénieurs de la Division travaillent en étroite collaboration avec les autres ministères ainsi qu'avec les représentants d'entreprises et d'organismes, sur les questions relatives à la foresterie, à l'environnement et à la construction. En 2000, la Division des ressources minières et de l'énergie a publié environ 45 cartes et 22 rapports.

En 2000, l'archiviste aux mines a reçu 91 rapports de travaux d'exploration minière. Les prospecteurs miniers ainsi que les sociétés d'exploration et les sociétés minières ont jalonné un total de 3084 claims, surtout pour la recherche de zinc, de plomb, de cuivre et d'or.

La prospection dans le Nord du Nouveau-Brunswick a principalement été axée sur les métaux communs. La Noranda Inc. et l'Hudson Bay Exploration and Development Co. Limited ont été les sociétés les plus actives à cet égard. Des travaux de forage au diamant ont été exécutés sur un certain nombre de concessions. Les métaux précieux et les sulfures de métaux communs ont constitué le principal objectif des travaux de prospection réalisés dans le Sud du Nouveau-Brunswick. La majeure partie de l'activité a été reliée à l'expansion des ressources des concessions aurifères reconnues et à la recherche de nouvelles venues d'or dans le Sud-Ouest de la province. Les chercheurs ont récemment démontré l'existence possible de gîtes aurifères substantiels associés aux granites abritant du Sn–W. Une présence d'or pourrait également être associée au granite du batholite de Pokiok. Les sociétés one fait preuve de beaucoup d'intérêt à l'égard de ces emplacements et d'autres secteurs de la région qui pourraient abriter des venues aurifères apparentées à des intrusions. On s'est également intéressé aux ressources en calcaire, en agrégats, en pierre de taille, en silice et en tourbe de la province.

La J.A. Seglund Inc., la RHT Enterprises Ltd., la Columbia Natural Resources Canada, Inc./MariCo Oil and Gas Corporation, la Corridor Resources Inc. et M. Jean Mariadassou étaient titulaires de permis de recherche de pétrole et de gaz naturel en 2000. L'Irving Oil Limited, la RHT Enterprises Ltd. et la J.A. Seglund Inc. étaient titulaires des baux d'exploitation de pétrole et de gaz naturel. L'A.A. (N.B.) Inc. était titulaire de deux autorisations de mise en valeur de schistes bitumineux. La St. Clair Pipelines (1996) Ltd. et Intragaz étaient, respectivement, titulaires d'un et six permis de stockage souterrain.

Durant l'année, une mine métallique était productive ainsi que 97 mines non métalliques, y compris 34 tourbières et environ 50 carrières, gravières et sablières de granulat minéral situées sur des terres de la Couronne et des terrains privés. Une entreprise a produit du charbon. Les activités aux mines Caribou et Restigouche (CanZinco Ltd.), à la mine Murray Brook (Murray Brook Resources Inc.), à la mine de Lake George (APOCAN Inc.) et à la mine de Mount Pleasant (Adex Mining Inc.) sont toujours suspendues.

La valeur de la production de minéraux au Nouveau-Brunswick se chiffrait en 2000 à 790 573 087$, ce qui représente une diminution de 7 % par rapport à 1999 (848 536 514 $). La valeur de la production de métaux et de matériaux de construction a diminué par 12 % et 14 %, respectivement, alors que celle de la production de métalloïdes et de combustibles a augmenté de 10 % et 16 %, respectivement. Par rapport aux autres provinces canadiennes, le Nouveau-Brunswick se classe premier pour la production de zinc, de plomb, de bismuth et de tourbe; et deuxième pour celle d'antimoine et d'argent. Le Nouveau-Brunswick est le seul producteur de marne au Canada.

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CHAPTER 1.
GOVERNMENT ORGANIZATION AND PROGRAMS

MINERALS AND ENERGY DIVISION

Donald E. Barnett, Assistant Deputy Minister

The New Brunswick Department of Natural Resources and Energy is responsible for managing the province's mineral and energy resources. In addition, it is the provincial agency responsible for mineral and energy policy.

The Minerals and Energy Division manages mineral and energy exploration, mine development, mineral processing and mine reclamation. The division also promotes the mineral and energy resource potential of the province, encourages exploration and extraction and the efficient use of energy. The mission of the division is to "identify and manage mineral and energy resources and optimize their economic contribution while sustaining environmental quality."

The Mineral Policy released in December 1993 and the Energy Policy of December 1990 form the basis of government's commitment to the long-term management of mineral and energy resources and support for development of each sector in a manner to both increase and sustain the economic value for present and future generations, whilst ensuring protection of the environment.

The three major projects initiated by the Minerals and Energy Division in 1999 continued into 2000. They are the Geological Surveys Branch internal review, the New Brunswick Mining Industry Study, and the Provincial Peat Policy Review.

The Geological Surveys Branch internal review report was completed in 1999 and submitted to management. It consists of five-year and ten-year work plans and several recommendations.

The report resulting from the New Brunswick Mining Industry Study was completed in 2000 by Dr. George Miller and Mr. Dallas Davis. After extensive consultations with industry participants, related private sector organizations and government departments, the authors made 27 recommendations. The Department released the report and consulted with industry in order to put together an action plan, which was then approved by government. The plan will be implemented over the next three years.

A draft Peat Policy Paper was approved by senior management of four government departments and then presented to peat producers, economic development commissions, Atlantic Canada Opportunites Agency and potential producers. Written briefs are expected to be submitted by June 1, 2001.

The five-year federal–provincial NATMAP Program continued into 2000.

The New Brunswick Exploration Assistance Program (NBEAP), and Mineral Exploration Stimulation Program (MESP) continued in 2000 with a budget of $350 000 and $90 000, respectively.

The Minerals and Energy Division consists of three branches: Geological Surveys, Mines, and Energy Secretariat. Organizational changes are shown in Figure 1a to 1d.

The 2000–2001 expenditures from the Division's A-base budget, from other provincial funds, and from federal/provincial agreements are summarized in Table 1 and Figure 2. Scientific, technical, administrative, and casual personnel employed by the Province in support of its mineral resources totalled 59 for 2000–2001.

Clientele of the Minerals and Energy Division are primarily mineral and energy resource companies, consultants, and associations. As well, many government departments and agencies and other resource-related industries utilize the geoscientific information generated by staff. In addition, staff provided direct advice into many government decisions on minerals and energy production and use at interprovincial and national levels. The Division continues to subscribe to the objective of providing quality service to all clients, delivered in an efficient and cost-effective manner.

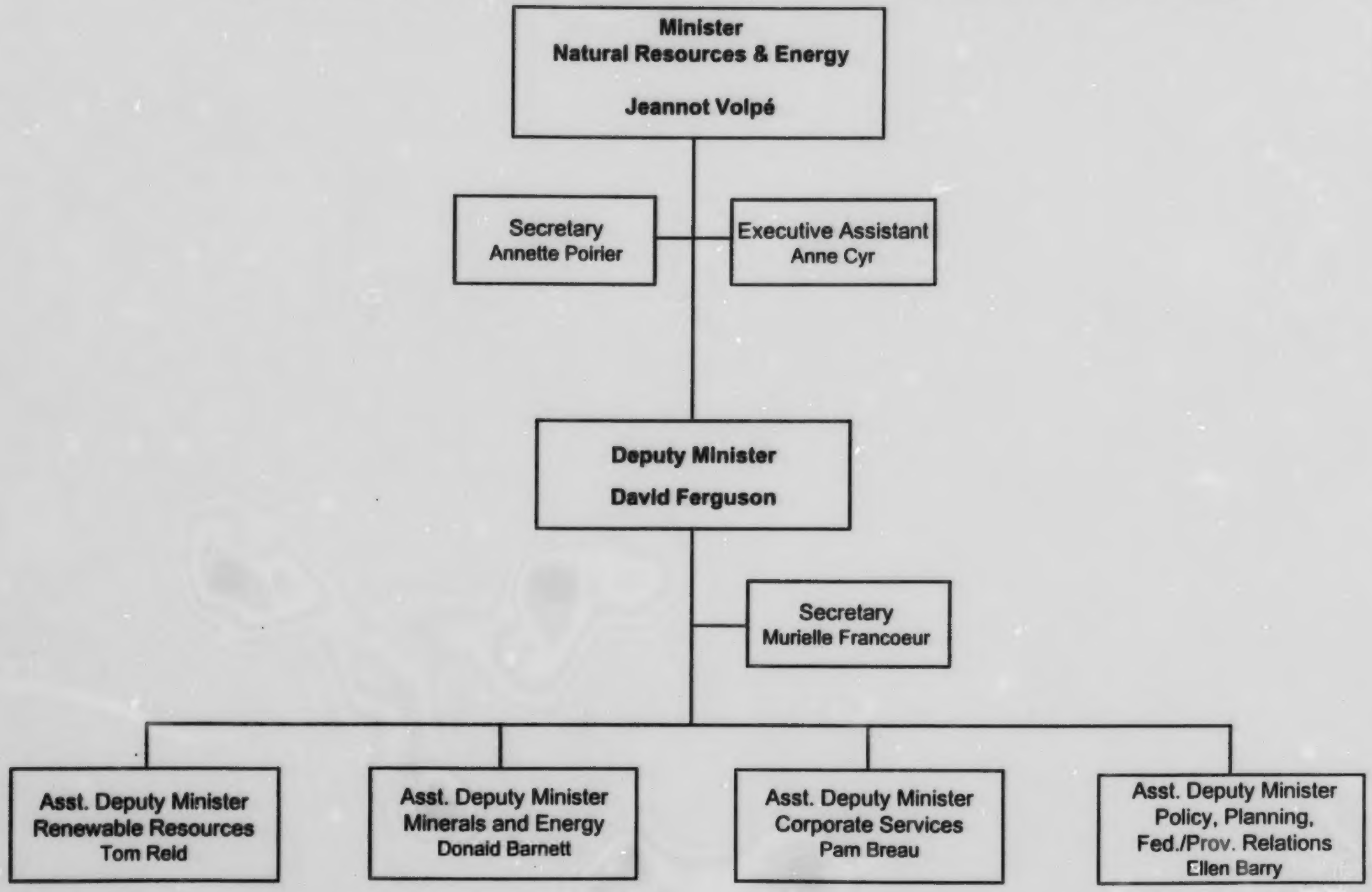
Geological Surveys Branch

Rao R. Irrinki, Director

The Geological Surveys Branch is responsible for building and maintaining a comprehensive geoscience database for the province and using it to assist mineral exploration and development, as well as to advise government and the public regarding land use. The branch has a staff of 27 and 2 regional offices, one in Bathurst and the other in Sussex. The Regional Offices provide direct contact with the mineral industry based in northern and southern New Brunswick, respectively. The major activities of the branch are geological mapping, mineral deposit studies and inventory, geophysical and geochemical surveys, management of exploration assistance programs, and distribution and maintenance of geoscience information. The specific responsibilities of the branch are: (a) to map and publish data on the bedrock and surficial geology of New Brunswick; (b) to maintain an up-to-date inventory of mineral and energy resources of New Brunswick. These resources include metallic minerals such as base metals, gold, tin and nickel; nonmetallic or industrial minerals such as potash, gypsum, limestone and peat; and energy resources such as oil and natural gas, bituminous shale and coal; (c) to assist the mineral and energy industry in its search for mineral and energy deposits by developing exploration models, identifying areas for exploration and development and providing a geoscience knowledge base; (d) to map coastal geomorphology and investigate environmental sensitivities of the coastline; (e) to review and process all applications for peat exploration licences and peat leases under the *Quarriable Substances Act*; (f) to manage drill core, exploration assistance programs and mineral exploration reports of work; (g) to computerize and maintain geoscience and mineral data by using the Geoscience Information System (GSIS); (h) to distribute geoscience (mineral) information and publications; to organize public information

Editor's Note: Projects commonly consist of a number of phases that are carried out by staff from different sections and branches of the Division. In order to find all the information on particular projects mentioned in this chapter, please refer to the index; the list of references for publications completed in 2000 is at the end of Chapter 1.

New Brunswick Department of Natural Resources and Energy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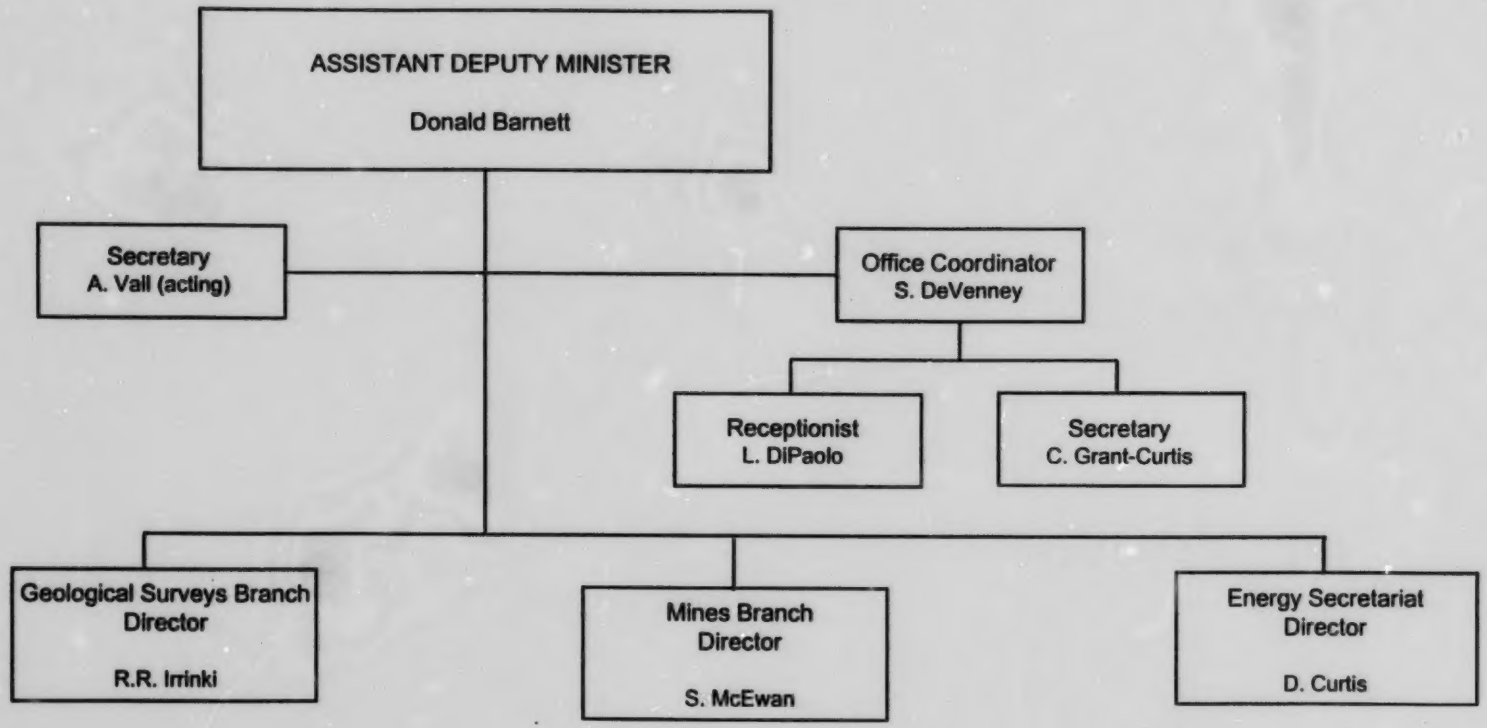
Ellen Barry

Figure 1a. Organization chart for the New Brunswick Department of Natural Resources and Energy (December, 2000).

Minerals and Energy Division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C. Grant-Curtis
Geological Surveys Branch
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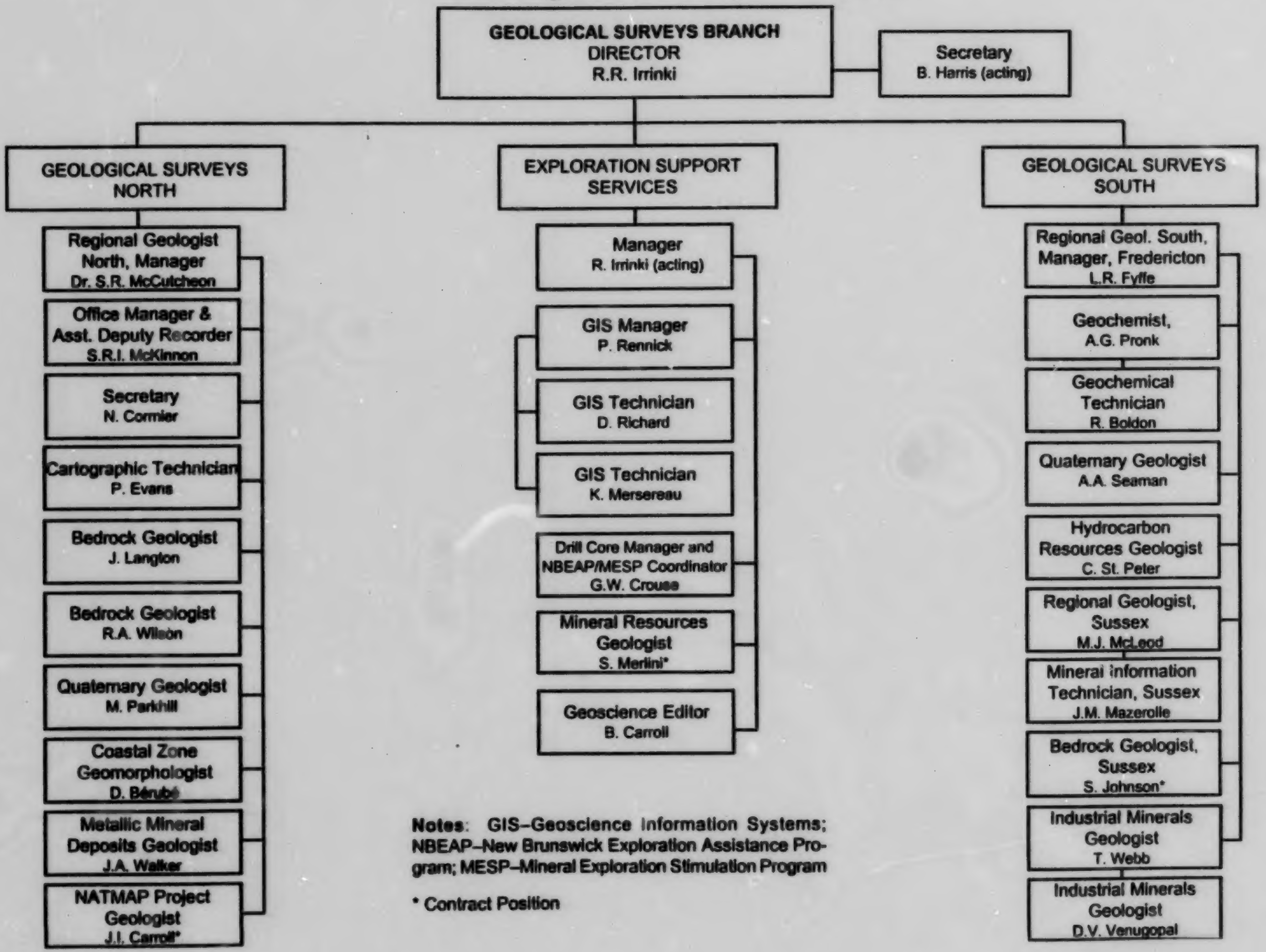
Mines Branch
Director
S. McEwan
Energy Secretariat
Director
D. Curtis

Figure 1b. Organization chart for the Minerals and Energy Division (December, 2000).

Geological Surveys Branch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P. Evans
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Bedrock Geologist
R.A. Wilson
Quaternary Geologist
M. Parkhill
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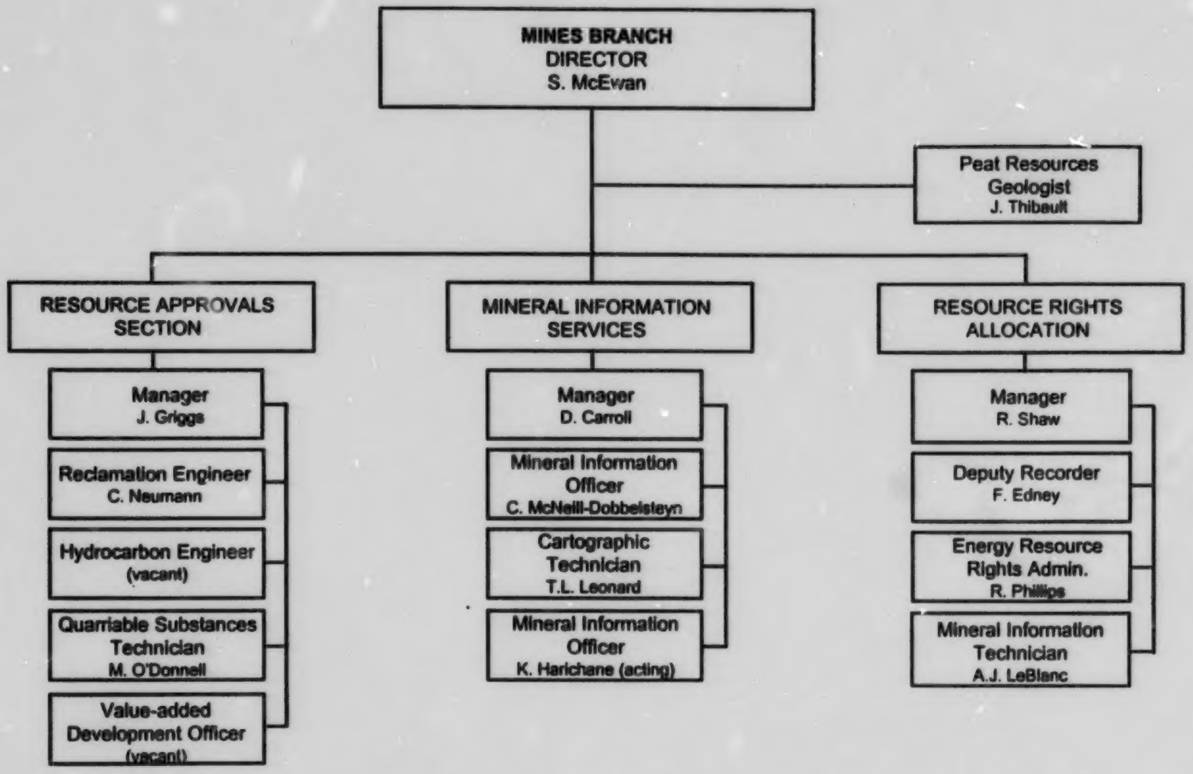
M.J. McLeod
Mineral information Technician, Sussex
J.M. Mazerolle
Bedrock Geologist, Sussex
S. Johnson*
Industrial Minerals Geologist
T. Webb
Industrial Minerals Geologist
D.V. Venugopal

Notes: GIS–Geoscience Information Systems; NBEAP–New Brunswick Exploration Assistance Program; MESP–Mineral Exploration Stimulation Program

* Contract Position

Figure 1c. Organization chart for the Geological Surveys Branch (December, 2000).

Mines Branch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Officer
C. McNeill-Dobbelsteyn
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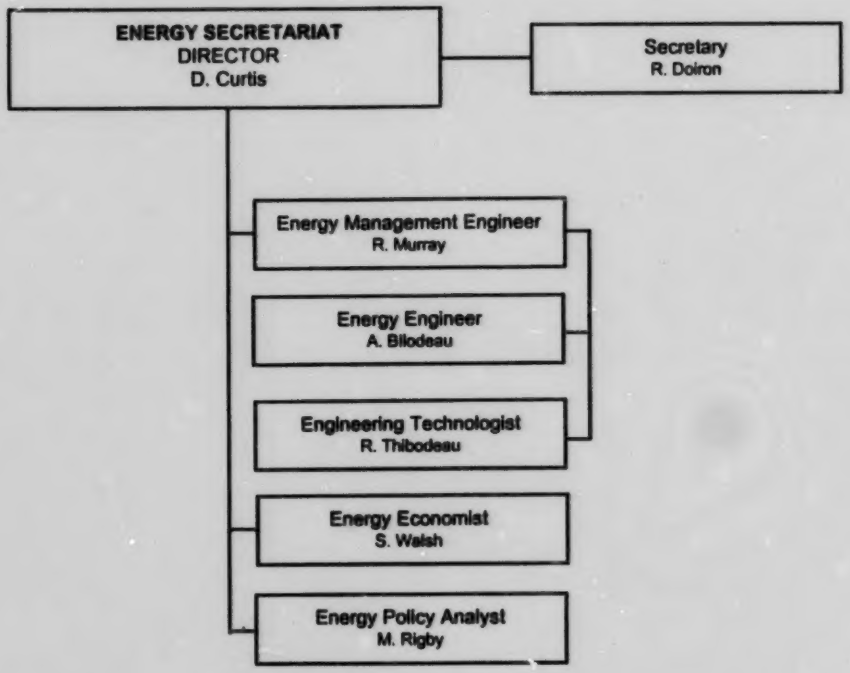
Energy Resource
Rights Admin.
R. Phillips
Mineral Information
Technician
A.J. LeBlanc

Figure 1d. Organization chart for the Mines and Energy Branch (December, 1999).

Energy Secretariat


ENERGY SECRETARIAT
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D. Curtis
Secretary
R. Doiron
Energy Management Engineer
R. Murray
Energy Engineer
A. Bilodeau
Engineering Technologist
R. Thibodeau
Energy Economist
S. Walsh
Energy Policy Analyst
M. Rigby

Figure 1e. Organization chart for the Energy Secretariat (December, 2000).

sessions related to the mineral and energy industry; promotion and public awareness of geoscience and the mineral and energy industry; (i) to provide expert advice and consultation on land use planning and environmental issues.

Table 1. Minerals and Energy Division Expenditures, 2000–2001

Province of New Brunswick	
Mines Branch	$1 177 480.57
Geological Surveys Branch	1 786 753.26
Mineral Exploration Stimulation Program	54 272.17
New Brunswick Exploration Assistance Program	292 670.46
Energy Secretariat	99 426.16
Total	**$ 3 410 602.62**
Province of New Brunswick / Natural Resources Canada Projects	
Appalachian Foreland & Platform Architecture (NATMAP)	75 000.00
Geochemical Survey, Central New Brunswick (NGR)	46 020.00
Province of New Brunswick (Dept. of Traning & Employment Development)	
Drill Core Program	20 608.26
Total	**$ 141 628.26**

The 2000–2001 ordinary budget for the Geological Surveys Branch was $2 013 500. Actual expenditures are shown in Table 1. The branch has three sections, namely Geological Surveys North, Geological Surveys South and Exploration Support Services (Figure 1c).

CONFERENCES / WORKSHOPS Rao Irrinki continued to chair the Mining Industry Study Steering Committee and the Peat Policy Review Steering Committee.

COMMITTEES Rao Irrinki attended the Annual International Convention and Trade Show of the Prospectors and Developers Association of Canada that was held in Toronto in March of 2000. He also attended the Mines and Energy Ministers’ Conference in Charlottetown in September. Rao Irrinki gave a presentation at the Review of Activities held in November.

Geological Surveys North

The main purpose of the Bathurst Regional Office is to provide basic scientific data that will help the mineral industry find and/or develop new mineable resources (both metallic and industrial mineral, including peat) in the northern half of the Province. This is accomplished by:

- maintaining a complete and readily accessible copy of the geoscience database;
- gathering new geoscience data, integrating them with existing data and producing new geological maps and mineral potential models;
- providing map and report reproduction services as well as exploration work histories on mineral properties;

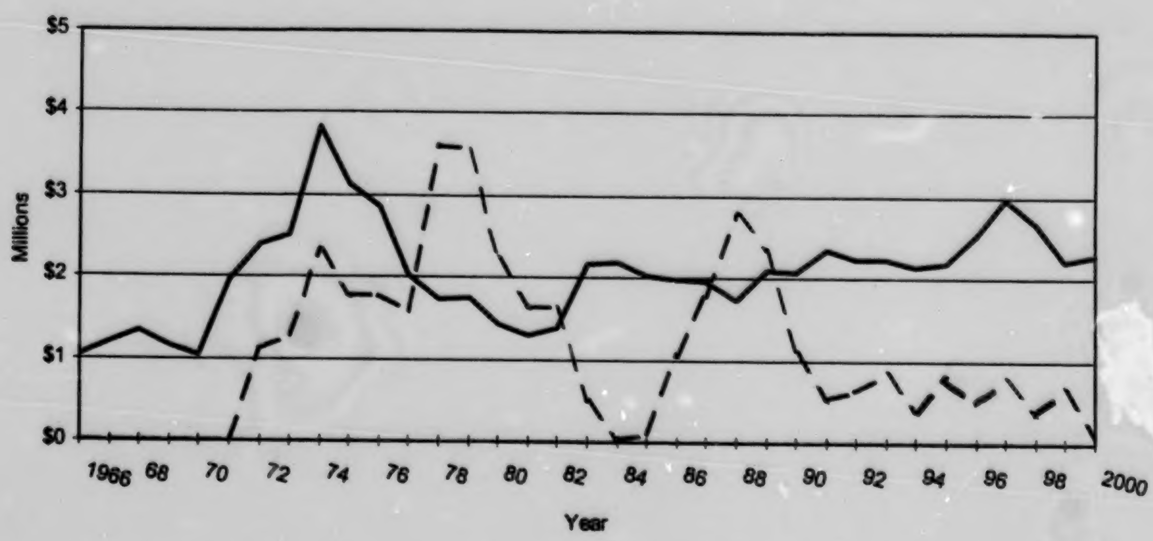

Figure 2. Minerals and Energy Division expenditures, 1965 to 2000, excluding those of Energy Secretariat. Legend: ——— Department A-base; - - - - - Federal/Provincial/other funding. ($1986 = 100)

- providing claims and lease information as well as claims recording services;
- providing geological consultation services/advice to mineral industry clients;
- encouraging investment by promoting the mineral potential of northern New Brunswick through talks, poster displays and geoscientific publications on selected areas and/or topics;
- helping to maintain the diamond-drill-core library for northern New Brunswick at Madran.

The staff at the office includes Sharon McKinnon (Administrative Services Officer), Nicole Cormier (Secretary), André LeBlanc (Mineral Information Technician), Phillip Evans (Cartographic Technician), Dr. Steven McCutcheon (Manager/Regional Geologist), James Walker (Metallic Mineral Deposits Geologist), John Langton (Bedrock Geologist), Reginald Wilson (Bedrock Geologist), Michael Parkhill (Quaternary Geologist), Jacques Thibault (Peat Resources Geologist), Dominique Bérubé (Coastal Zone Geomorphologist), and Jeffrey Carroll (NATMAP Project Geologist). Janet-Lee Bannister, Marni Lynne Dickson, Léa Olsen, Denis Doucet and Christopher MacDonald were hired as summer personnel in 2000.

EXTECH-II PROJECT This cooperative five-year venture focused on the Bathurst Mining Camp and involved the Geological Survey of Canada (GSC), the New Brunswick Department of Natural Resources and Energy, and private industry. The project ended in March, 1999 but some of the publications, including an Economic Geology Monograph and a Geophysical Atlas, were still in the writing/review process at that time. Consequently, during the early part of 2000, significant effort was devoted by some staff members toward finalizing manuscripts for publication. The Geophysical Atlas was published before year-end and the remaining EXTECH publications are anticipated in 2001.

RESTIGOUCHE PROJECT This project began in 1997 and the reader is referred to New Brunswick's Mineral Industry, 1998 and 1999 (MRR 99-3 and 2000-3, respectively) for descriptions of the initial

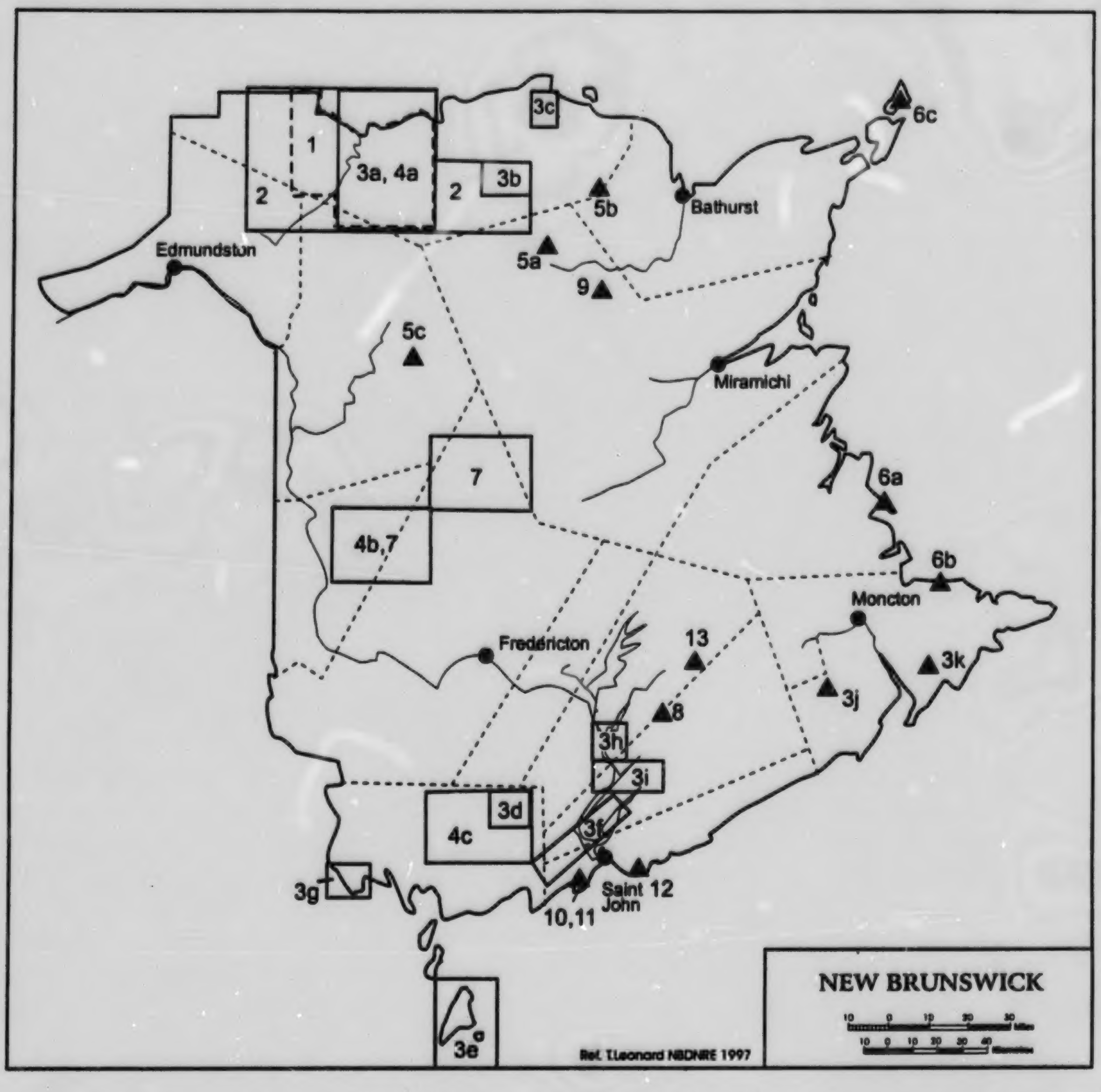
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Figure 3. Areas in which some Geological Surveys Branch and Mines Branch projects were conducted in 2000: (1) Restigouche Project, Phase III; (2) NATMAP's Geological Bridges Project, Transects 3 and 4; (3) Bedrock mapping: **a.** Kedgwick, Menneval; **b.** Upsalquitch; **c.** Charlo; **d.** South Oromocto Lake; **e.** Grand Manan Island; **f.** part of Kingston Belt; **g.** St. Stephen Gabbro and Baring Granite; **h.** Wickham; **i.** Long Reach; **j.** Meadow–Prosser Brook; **k.** Upper Dorchester; (4) Quaternary geology and till geochemistry: **a.** Kedgwick, Menneval; **b.** Coldstream; **c.** McDougall Lake; (5) Mineral deposit studies: **a.** Mount Fronsac, **b.** Clarinda, **c.** Sewell Brook–Mount Costigan; (6) Coastal zone studies: **a.** Bouctouche Dune; **b.** L'Aboiteau Beach; **c.** La Grande Plaine; (7) Stream-sediment geochemistry; (8) Titanium study, Stewarton; (9) Heath Steele mine site reclamation; (10) Lorneville pipeline; (11) Coleson Cove thermal generating station; (12) Cape Spencer mine; (13) Coles Island area sandstone.

work. The results of the 1999 airborne geophysical and stream-sediment geochemical surveys, which encompass the northeastern end of the Edmundston Zone (Figure 3: 1), were released in June of 2000. Although no significant geochemical anomalies were detected, the survey helped elucidate the geology and clearly shows that the previously detected nickel–cobalt anomalies are spatially associated with a large magnetic anomaly, which is interpreted as a blind, composite intrusive complex.

NATMAP PROJECT This five-year project involves three provinces and is being carried out through the Geological Survey of Canada–Québec Division, under the direction of Denis Lavoie and Daniel Lebel (GSC-Québec), Steven McCutcheon (New Brunswick Geological Surveys Branch) and Stephen Colemann-Sadd (Geological Survey of Newfoundland). It comprises five transects across the Laurentian continental margin, two of which extend across the Gaspé Belt into northwestern New Brunswick. Transect 3 trends south along the Matapédia River to the vicinity of Saint-Quentin. Transect 4 trends northeasterly from the end of Transect 3 toward Dalhousie, across the end of Gaspé to Anticosti Island and beyond (Figure 3: 2). The Restigouche Project constitutes part of this NATMAP Project.

Bedrock mapping was undertaken in transects 3 and 4 as part of NATMAP. Jeffrey Carroll, assisted by Christopher MacDonald, carried out 1:50 000 scale mapping under a NATMAP contract in the western half of the Kedgwick (NTS 21 O/11E) and southern part of the Menneval (21 O/14) map areas (Figure 3: 3a). Eventually his mapping will encompass four map areas in Transect 3 (NTS 21 O/11, 21 O/12, 21 O/13 and 21 O/14). Reginald Wilson and John Langton carried out bedrock mapping at 1:20 000 scale in parts of the Upsalquitch and Charlo map areas (NTS 21 O/10g, 21 O/10h and 21 O/16e; Figure 3: 3b, 3c) under A-base funding.

Regolith mapping was undertaken under A-base funding in Transect 3 at 1:50 000 scale, as part of NATMAP as well. Michael Parkhill, assisted by Denis Doucet, collected 320 till samples in the Kedgwick and Menneval map areas (NTS 21 O/11 and 21 O/14, respectively). This included approximately 50 samples from a detailed survey around the Patapedia copper deposit (Figure 3: 4a).

MINERAL DEPOSIT STUDIES James Walker, assisted by Janet-Lee Bannister, continued to field check occurrences and enter data into the Mineral Occurrence Database. He finished editing the EXTECH Geophysical Atlas for publication, and he logged and sampled cores from the Mount Fronsac and Clarinda deposits (Figure 3: 5a, 5b). In addition, he continued to work part time on deposits in the Sewell Brook–Mount Costigan area of the Tobique–Chaleur zone (Figure 3: 5c) for his M.Sc. thesis at the University of New Brunswick.

David Lentz's position as Mineral Deposits Geologist has been vacant since the beginning of January, 2000 when he took on the role of professor of Economic Geology at the University of New Brunswick.

COASTAL ZONE Dominique Bérubé, assisted by Léa Olsen, carried out work with both restoration and documentation components. Aerial photos from 1945, 1973 and 1996 were digitized at high resolution (CARIS) to analyze coastline (dune) and shoreline (beach) changes at Miscou Island and Bouctouche Dune. Dominique continued to monitor erosional/depositional changes (beach profiles) at Bouctouche Dune, L'Aboiteau Beach and La Grande Plaine (Figure 3: 6a, 6b, 6c). At the latter beach, he collected fossil shells for ^{14}C dating.

Conferences / Field Workshops / Courses The Bathurst staff promoted the geology and mineral potential of northern New Brunswick by displaying posters and giving oral presentations at a number of conferences. In February, Jeff Carroll, John Langton, Michael Parkhill, James Walker, and Reg Wilson attended the Colloquium and Annual General Meeting of the Atlantic Geoscience Society in Fredericton. In February, Jeff attended the NATMAP Annual Review of Activities in Ottawa. In March, John attended and helped staff the Geological Surveys Branch display at the Annual International Convention and Trade Exposition of the Prospectors and Developers Association of Canada in Toronto. In the same month, Dominique Bérubé presented talks at Les Conférences-Midis du CEN, Université Laval, Québec City. In May, Steve McCutcheon and Jeff Carroll attended and presented a poster at the Geological Association of Canada–Mineralogical Association of Canada Joint Annual Meeting in Calgary. In late August, Jeff Carroll, John Langton, Steve McCutcheon and Michael Parkhill attended a NATMAP field trip in southern Gaspé. In September, Dominique Bérubé presented a poster at the Coastal Zone Canada Conference in Saint John. In early November, several staff members of the Bathurst office presented talks and/or posters at the New Brunswick Minerals and Energy Division's Annual Review of Activities. Abstracts for oral presentations and posters at these conferences are listed at the end of this chapter. In late November, Jeff Carroll and Reg Wilson participated in a NATMAP workshop in Québec City.

Publications Both internal and external publications were prepared by the Bathurst staff. Of the seven papers in "Current Research 1999" (Mineral Resource Report 2000-4), three were contributed by geologists from the Bathurst office. J. Walker co-authored an external publication; S. McCutcheon provided critical reviews of manuscripts for the EXTECH Monograph.

Committees In 2000, Steve McCutcheon sat on both the New Brunswick Exploration Assistance Program (NBEAP) and Mineral Exploration Stimulation Program (MESP) committees. He was a member of the Continued Competency Assurance Committee of the Association of Professional Engineers and Geoscientists of New Brunswick (APEGNB), an Associate Editor of Exploration and Mining Geology, and Finance Chair of the Geological Association of Canada. Michael Parkhill finished his term as President of the Atlantic Geoscience Society (AGS) early in the year and Reg Wilson served as a councillor of AGS and a member of the Legislation Committee of the APEGNB. Dominique Bérubé was a member of the New Brunswick Coastal Zone Committee.

Other Activities During the year, the staff provided geological consulting and/or exploration support services to geologists and prospectors, both in the office and the field. Visits were made to mineral properties held by the following companies: Eastmain Resources Inc., Hudson Bay Exploration & Development Co. Limited, Log House Construction Ltd., Noranda Inc. and Slam Exploration Ltd.

Field trips, office tours and class presentations were given to middle school and high school students by J. Walker and R. Wilson. M. Parkhill acted as external examiner for F. Isenor's M.Sc. thesis at Acadia University and co-supervised M.L. Dickson's M.Sc. thesis at the University of New Brunswick. Staff also participated in the Job Shadowing and Youth Apprenticeship programs with students from Bathurst High School.

Geological Surveys South

Geological Surveys South staff, located at the Hugh John Flemming Forestry Centre in Fredericton, consists of Les Fyffe (Manager), Clinton St. Peter (Hydrocarbon Resources Geologist), Allen Seaman

(Quaternary Geologist), Toon Pronk (Geochemist), Rex Boldon (Geochemical Technician), Tim Webb (Industrial Minerals Geologist) and D.V. Venugopal (Industrial Minerals Geologist).

Staff at the Picadilly Road office in Sussex consisted of Malcolm McLeod (Regional Geologist), Susan Johnson (Bedrock Geologist) and Maurice Mazerolle (Engineering Technician). Erin Smith (student) was hired for the summer.

Geological mapping was carried out in Charlotte County, southern New Brunswick by Les Fyffe who mapped the Paleozoic bedrock of the South Oromocto Lake area (part of NTS 21 G/07; Figure 3: 3d) and the pre-Mesozoic rocks of Grand Manan Island (NTS 21 B/10 and B/15; Figure 3: 3e) at a scale of 1:50 000.

Sandra Barr of Acadia University was partially funded by the Department of Natural Resources and Energy while continuing her research and mapping in the southwestern part of the Kingston belt (part of NTS 21 G/08) (Figure 3: 3f). Maps of the entire Kingston belt are presently being compiled at 1:20 000 scale (21 G/01c–01h; 21 G/02a,b,g,h; 21 G/08a,b,g,h; and 21 H/05d–05f). Samples collected from the Caledonia, Brookville, Kingston and Mascarene terranes are being radiometrically dated by Brent Miller at the University of North Carolina; five samples have now been processed. Kirsten McLaughlin of Acadia University (M.Sc. thesis supervised by S. Barr) is studying the St. Stephen Gabbro and Baring Granite (part of NTS 21 G/03) (Figure 3: 3g).

SUSSEX REGIONAL OFFICE The Sussex Regional Office is an amalgamated facility that houses the Geological Surveys and District Forest Ranger staff. During 2000, the staff continued to provide ready access to government reports and maps, the drill-core facility and to technical equipment. Consultation services were provided throughout the year to the exploration community, to other government agencies and engineering firms, and to academic institutions. Other work included tasks associated with all aspects of claim staking and recording, and promotion of southern New Brunswick's mineral industry via regional-scale and site-specific field trips and oral presentations. The office is also a base from which some of the bedrock geological mapping projects were conducted.

Malcolm McLeod completed a 1:20 000 scale bedrock mapping program to delineate the distribution of Lower to Upper Paleozoic units in the Wickham area (NTS 21 G/09h; Figure 3: 3h).

Susan Johnson, assisted by Erin Smith during the summer, and Malcolm McLeod continued 1:20 000 scale mapping to unravel the stratigraphic and structural relationships in the Long Reach area (parts of NTS 21 G/09a and H/12d; Figure 3: 3i). In conjunction with Clinton St. Peter, work on the final report for the NATMAP Magdalen Basin project continued.

Maurice Mazerolle provided technical assistance in the preparation of geological maps, figures and diagrams for plates, presentations and publications. He also continued to compile diamond-drill hole and trench information in the southern part of the province, and oversaw reorganization of core at the Sussex core-storage facility with the help of Johnathon Carhart.

CARBONIFEROUS GEOLOGICAL SURVEYS (Clinton St. Peter) Field work continued on the Carboniferous geology of southeastern New Brunswick. The studies included: (1) a re-examination of the geology in the Meadow and Prosser Brook area (Figure 3: 3j) where Horton Group rocks were identified for the first time and dated with spores, (2) a study on the northeastern extension of the Harvey–Hopewell Fault in the

Upper Dorchester area (Figure 3: 3k), where the Fault is seen to have greatly influence sedimentation and the distribution of units, and (3) the preliminary logging of core holes to assist Columbia Natural Resources Canada, Ltd. and Corridor Resources Inc. with their oil and natural gas exploration programs in New Brunswick. The geological maps for the NATMAP Maritimes Basin project were revised and the final drafts completed. A spores and pollen database for the NATMAP project was completely reformatted and new data input. The maps and database will be included in the final report for the project.

Quaternary Geology (Allen Seaman) A south-southeast-trending As–Sb dispersal train in the northern part of the Millville (NTS 21 J/03) map area was identified by an earlier Department of Natural Resources and Energy till geochemistry project. This dispersal train was presumed to be derived from an unknown source in the Coldstream (NTS 21 J/06) map area to the north. It was speculated that the source could be mineralization associated with the Woodstock Fault system. Initial till sampling along the north-northwestward projection of the dispersal train was carried out in 1998. In 2000, till sampling was continued in the Coldstream map area (Figure 3: 7a). In the west half of the map area, sampling was extended to the Woodstock Fault system along the projected trend of the dispersal train, and was carried out along and to the south of the Woodstock Fault system. In the east half of the map area, sampling was carried out primarily along the southern boundary.

The objectives of this till sampling project were: (1) to determine the source of the previously identified As–Sb dispersal train; (2) to aid in assessing the mineral resource potential of the Woodstock Fault system in the Coldstream map area; and (3) to determine if till geochemical anomalies along the northern border of the east half of the Millville map area extended into the southern part of the Coldstream map area. Samples were collected based on the standard 2 km sample grid, comparable to that used for the adjacent Millville and Woodstock (NTS 21 J/04) map areas. Samples were collected from 120 sites.

Geochemistry Laboratory (Toon Pronk, Rex Boldon) During the summer of 2000 surficial mapping and till sampling were carried out in the McDougall Lake area, with special emphasis on the Clarence Stream area (Figure 3: 4c). This is host to New Brunswick's newest gold play that was discovered by Reg Cox Jr. as a follow-up to an National Geochemical Reconnaissance (NGR) stream-sediment survey. Toon Pronk (as the scientific authority and intermediary between the Geological Survey of Canada and Federal Department of Supply and Services, and the local contractor) directed an NGR survey in part of central New Brunswick (NTS 21 J/06, 10; Figure 3: 7).

Rex Boldon provided field and laboratory assistance for several surficial mapping projects. He prepared all collected till samples for analysis and carried out grain-size analyses on till samples from surficial mapping in the Bathurst Mining Camp, NATMAP (northwestern New Brunswick, Figure 3: 2), and the Coldstream map area (Figure 3: 4b). Toon Pronk and Rex Boldon directed and did quality control on a stream-sediment and water geochemistry survey in central New Brunswick (Coldstream and Hayesville map areas; Figure 3: 7). The surveys were conducted to the standards of the Geological Survey of Canada's National Geochemical Reconnaissance and will be published in 2001.

Industrial Minerals (Tim C. Webb and D.V. Venugopal) In 2000, the industrial minerals section of the Geological Surveys Branch continued with geotechnical activities related to gypsum, titanium and silica. In addition, the section dealt with an assortment of issues pertaining to the development of New Brunswick's nonmetallic mineral resources.

The re-assessment of New Brunswick's gypsum and anhydrite resources continued. The structure of this project was altered part of the way through. Instead of one summary report on six deposits as originally planned, it was decided to expand the work plan to include seven deposits, each with a detailed map and an independent report profiling its geology and development history. Each report addresses the location; a general description and land usage in the area; a general and detailed geology; a geologic model to assist exploration and development; a deposit evaluation based on compiled drilling, ore grades, tonnage, etc.; a detailed history; and proposed exploration and development alternative(s) in the area of interest. A comprehensive reference list is included for each deposit. A data base or summary report in tabular format will be prepared for these deposits and will include background information on several other gypsum and anhydrite occurrences in the provinces considered of secondary interest. The establishment of exploration models for these deposits has led to an improved understanding of the various geologic factors controlling the distribution of gypsum and anhydrite resources and has resulted in the recognition of several areas with exploration potential for high-quality gypsum.

Detailed characterization of five genetic types of silica occurring in New Brunswick (i.e., veins, quartzite, arenaceous clastics, siliceous gravel, etc.) assists in the recognition of favorable exploration and development sites. Selected deposit types have been chosen and reported on with respect to: location, general and detailed geology, development of geologic model to assist exploration and development alternatives, deposit evaluation based on compiled drilling, ore grades, tonnage, etc., exploration and development history, and current status of the mineral property. A comprehensive reference list on each deposit type will be compiled and an appendix will be attached outlining in tabular format background information pertaining to several other silica occurrences in the province of secondary interest. This work is in progress and associated fieldwork has revealed several new occurrences in southeastern New Brunswick.

Detailed studies were undertaken to assess the potential for titanium deposits in New Brunswick. Most of this work was focused on what appears to be a favorable gabbro–anorthosite sequence of rocks, host to significant magnetite–ilmenite–apatite mineralization in the Stewarton area, 25 kilometers west of Sussex in south-central New Brunswick (Figure 3: 8). A detailed 1:25 000 scale geological map of the area has been finalized. Other completed work includes detailed petrography, geophysical modeling based on magnetic and gravity data, rock geochemistry for more than 30 samples, microprobe work on selected samples and a literature search into the nature of titanium deposits in general. This work is being assembled into a final report on the property.

COMMITTEES Les Fyffe is on the committee of the Atlantic Geoscience Society that has prepared a book on the geology of the Maritimes to mark the 20th anniversary of the Society. The book is now at the printing stage.

Clinton St. Peter chaired the Accommodations Committee for the Atlantic Geoscience Society's Colloquium and Annual General Meeting held in Fredericton in February 2000. Toon Pronk is the New Brunswick representative on the Canadian Geoscience Education Network.

CONFERENCES/WORKSHOPS/FIELD WORKSHOPS Malcolm McLeod attended the 69th Annual International Convention and Trade Exhibition of the Prospectors and Developers Association of Canada that was held in Toronto in March.

Malcolm McLeod and Susan Johnson attended and participated in the Atlantic Geoscience Society Colloquium and Annual General Meeting in February held in Fredericton. Posters were presented and

Susan Johnson co-authored a paper with Clinton St. Peter and Graham Dolby dealing with aspects of the Carboniferous rocks in southern New Brunswick.

Early in the summer, Malcolm McLeod, Les Fyffe and Susan Johnson, in cooperation with Acadia University personnel, continued with joint research on the Avalon Zone of southern New Brunswick and correlatives in Maine. Several field trips were organized and attended to that end.

Clinton St. Peter attended the Atlantic Geoscience Society's Colloquium and Annual General Meeting in Fredericton in February. At the special session on the 'Geology of the Maritimes Basin' he (with co-authors Sue Johnson and Graham Dolby) gave a paper on "Advancements in the lithostratigraphy, palynology and boundary relationship of the Upper Carboniferous Cumberland and Pictou groups in southeastern New Brunswick". Clinton St. Peter and Ron Phillips attended the Canadian Association of Petroleum Landmen's prospect exchange in Calgary in April where they attended New Brunswick's booth displaying the current oil and natural gas activities in New Brunswick. Clinton St. Peter attended the Division's annual Review of Activites where he reviewed the year's activities concerning oil and gas drilling and developments.

In May, a field trip was given to employees of MariCo Oil and Gas Cooperation and Corridor Resources Inc. in the Boudreau Village and Upper Dorchester areas where petroleum geology features were shown. In June, Clinton St. Peter and Sue Johnson guided a geological field trip in southern New Brunswick. The objective of the trip was to demonstrate representative sedimentological, stratigraphic and structural features of Carboniferous and early Mesozoic sedimentary rocks of the Maritimes and Fundy basins. In October, Clinton organized a two-day field trip for geologists from TotalFinaElf. They were conducting a regional assessment of petroleum potential of the Maritimes Basin and stops that characterize the petroleum system in the Albert Formation were emphasized. In November, a field trip in the Upper Dorchester and Boudreau Village areas was given to participants attending the Division's annual Review of Activities.

Toon Pronk presented a poster on the detailed till geochemistry survey in the Clarence Stream area at the annual Review of Activities.

Industrial Minerals staff, Tim Webb and D.V. Venugopal (Venu) presented papers and posters at the Minerals and Energy Division's 2000 Annual Review of Activities. Tim's paper entitled "The changing face of industrial rock and mineral development in New Brunswick" briefly reviewed the past and present development of the Province's industrial minerals industry while considering several potentially new development possibilities into the new millenium. A poster on various aspects of the province's gypsum resources was displayed along with some interesting natural anhydrite sculptures. Venu presented a review of his work regarding potential sources of titanium mineralization in New Brunswick. His paper, entitled the "Geology of the Stewarton Complex, Southern New Brunswick – its Titanium and Apatite Potential," complimented by a poster display provided an interesting revelation into the potential for these types of deposits.

Several information handouts (i.e., "Industrial Rock and Mineral Development in New Brunswick: 1999 Review" and "New Brunswick's Industrial Rock and Mineral Resources...Diversity in Potential...Exploration, Development and Processing Alternatives") were also prepared for distribution at the Division's 2000 Review of Activities, the Cordilleran Exploration Roundup and the International Convention and Trade Exposition of the Prospectors and Developers Association of Canada.

In June 2000, Tim Webb presented a review of industrial rock and mineral development in New Brunswick at the CIM District One Millennium Meeting sponsored by the Mining Society of Nova Scotia.

OTHER ACTIVITIES Les Fyffe and Steve McCutcheon have compiled, in digital format, a new 1:500 000 scale geology map of New Brunswick.

Throughout the year, Toon Pronk visited classrooms when teachers made requests through the Geological Surveys Branch. A total of nine classes, from grades K to 6, mostly one but sometimes two classes at a time, in five different schools (approximately 300 students) were visited. Mostly grade 5 and 6 students learned about rocks and minerals, volcanoes, earthquakes, ice ages, soils, erosion, mining, and earth science in general. The presentation is adapted to fit the "Changes in the Land" earth science module in the science curriculum. It is increasingly difficult to fit these visits into our section's activities.

PUBLICATIONS A paper on the stratigraphy and trace fossils of the Baskahegan Formation near Woodstock, co-authored by Ron Pickerill (University of New Brunswick) and Les Fyffe (New Brunswick Geological Surveys Branch), has been published in *Atlantic Geology*. A paper presenting the preliminary results of radiometric dating in southern New Brunswick, co-authored by Brent Miller, Sandra Barr, Les Fyffe and Chris White, has been published in "Current Research 1999."

Allen Seaman completed an Open File release of digital till geochemistry data for the New Brunswick part of the Woodstock (NTS 21 J/04) map area. A paper on till geochemistry and glacial dispersal in the eastern part of the Woodstock (NTS 21 J/04) map area was published in the Division's "Current Research 1999" volume.

Final proofs for a contributing article entitled "Industrial rock and mineral development and opportunities in New Brunswick" were reviewed. Focusing on the importance and high level of activity surrounding the development of the province's industrial rock and mineral resources, this paper is to be published in an upcoming special volume, "Industrial Minerals in Canada," by the Canadian Institute of Mining, Metallurgy and Petroleum. The following is an excerpt from the paper's abstract:

> "New Brunswick's varied geology is reflected not only by the diversity of industrial rock and mineral resources presently under development but also in several promising exploration and potential development opportunities. The Province is home to several industrial rock and mineral processing facilities, each with established technologies ensuring high-quality products and each with sufficient flexibility to supply customized products for various specialized niche markets. With the imminent availability of natural gas to parts of the Province, the prospects for additional value-added processing and re-examination of known, yet presently undeveloped deposits appear excellent. These variables coupled with New Brunswick's advantageous geographical location, highlighting tidewater access to global markets and within one day's trucking distance to a regional market of several million people, guarantee prompt delivery of high-quality products at competitive prices."

Exploration Support Services

The Exploration Support Services Section consists of the Manager (vacant position), Paul Rennick (GIS Manager), Diane Richard (GIS Technician), Ken Mersereau (GIS Technician), Greg Crouse (Drill Core Manager, Exploration Support Services), Shasta Merlini (Mineral Resources Geologist), and Barbara Carroll (Geoscience Editor). This Section is responsible for the New Brunswick Mineral Occurrence Database; Compilation and Publication of "Available Mineral Properties in New Brunswick"; Drill Core Management and Exploration Support Programs; Computerization of Geoscience Data and GIS-related Projects; and Geoscientific Editorial Services.

NEW BRUNSWICK MINERAL OCCURRENCE DATABASE (Shasta Merlini) The New Brunswick Mineral Occurrence Database includes descriptions of metallic mineral occurrences in New Brunswick that range in size from small showings to operating mines. The data recorded include descriptions of the geological setting, geographic location, prospecting history, geochemical and geophysical surveys, trenches and drill holes, assays, and published reserves. Sources of information are listed and include the Division's published geological reports, maps, and unpublished file material, industry assessment reports, Geological Survey of Canada publications, scientific journal articles, and university theses.

All coordinates are in the New Brunswick Stereographic Projection, based on the Average Terrestrial System 1977. The New Brunswick Mineral Occurrence Database is updated on an ongoing basis for the entire province.

The database currently uses dBASE file format in a stand-alone DOS-driven program. Future plans may include upgrading to a Windows-based environment. The computerized database contained 802 mineral occurrences when it was first released by D. Rose and S. Johnson in 1990. In 1993, the Division began to create separate text files to contain additional information for some of the mineral occurrences. The most recent update (November, 2000) included 1413 mineral occurrences, with text files for the majority.

AVAILABLE MINERAL PROPERTIES IN NEW BRUNSWICK (Shasta Merlini) The New Brunswick Department of Natural Resources and Energy commonly receives requests for information on available mineral properties in New Brunswick. In addition, prospectors frequently ask if any companies are interested in acquiring properties. The Department, in cooperation with the New Brunswick Prospectors and Developers Association (NBPDA), began to compile information on currently active New Brunswick mineral properties in late 1997 for a yearly publication called "Available Mineral Properties in New Brunswick" (Reference 130). The purpose of the report is to actively promote exploration in New Brunswick, encourage interaction within the exploration community, and attract new junior and major mining companies to the Province. The publication is generally published once a year to be distributed at the Annual Cordilleran Exploration Roundup conference (January), the Annual International Convention and Trade Exhibition of the Prospectors and Developers Association of Canada (March), and the New Brunswick Department of Natural Resources and Energy Annual Review of Activities (November).

Letters are sent out to all current claim holders requesting information on their mineral properties. Prospectors and mining companies who would like to promote their properties submit the data to the Department. There is a one-page summary for each property along with a map showing the claim group(s) of interest, general geology (if provided), and any nearby significant mineral occurrences or mine sites.

The properties are organized according to general deposit types. Indices are provided at the back to cross-reference property name, prospector/company, contact person, and NTS map area. A list of mineral occurrences and the "Directory of Goods and Services for the Exploration Industry in New Brunswick / Répertoire des produits et des services offerts à l'industrie de l'exploration minérale au Nouveau-Brunswick" (compiled by C. McNeill-Dobbelsteyn and B. Carroll) are included.

DRILL-CORE MANAGEMENT AND EXPLORATION SUPPORT SERVICES (Greg Crouse) The Geological Surveys Branch maintains drill-core storage facilities in Fredericton, Bathurst, and Sussex. The Bathurst facility, located approximately 30 km north of Bathurst at Madran, was built in the mid-1970s with funding from the Canada–New Brunswick General Development Agreement. The Sussex facility, located behind the Regional Office at Picadilly, was built in the 1980s from funding under the Canada–New Brunswick Mineral Development Agreement. The Fredericton core-storage facility was built as part of the Hugh John Flemming Forestry Centre in the late 1980s. All facilities are equipped with well lit viewing rooms and core saws. The facilities are well used by industry and government geologists.

In 2000, the Geological Surveys Branch received core from Slam Exploration Ltd., Columbia Natural Resources Canada, Ltd., and Corridor Resources Inc.

Mineral Exploration Stimulation Program (MESP) In 1988, the Geological Surveys Branch introduced the MESP for prospectors. Successful applicants to the program are awarded grants to help defray their prospecting costs. Eligible expenses for the program are analyses, mileage, trenching, geophysics, and geological consulting. Prospectors are not allowed to charge capital expenses or wages to the program. The recipient must provide the Program Coordinator with a sample location map, results of analyses, and receipts documenting expenses in order to receive the final installment of the grant. Applications are reviewed by a committee chaired by Greg Crouse. Members of the Committee in 2000 were M. McLeod, S. McCutcheon, and Gary Woods. They reviewed 39 applications for funding and approved 38. The MESP budget was $90 000 in 2000 ($60 000 for grants and $30 000 for prospecting courses). The maximum grant for 2000 was $2000.

New Brunswick Exploration Assistance Program (NBEAP) This program, funded by the Canada–New Brunswick Cooperation Agreement on Economic Diversification, was introduced in November, 1994. The main objective of the program is to provide financial assistance to junior mining companies in order to increase the probability of finding economic reserves of mineral resources in New Brunswick. This program will provide up to 50% of the project cost to a maximum of $40 000. The minimum amount available per project is $20 000. The remaining costs of the project will be borne by the applicant, either in cash or "in-kind" work.

A provincially funded NBEAP program was introduced in 1998 with the same objectives and guidelines as for the previous federal–provincial program. In 2000, NBEAP was funded completely by the New Brunswick Department of Natural Resources and Energy. The review committee that evaluates the applications consists of representatives from both government and industry. In 2000, the committee, chaired by Greg Crouse and comprising M. McLeod, B. Roulston and S. McCutcheon, reviewed 18 applications and recommended that 13 applicants receive assistance for a total of $350 000.

COMPUTERIZATION OF GEOSCIENCE DATA AND GIS-RELATED PROJECTS (M.P. Rennick, K. Mersereau and D. Richard) Staff continued to update databases using the Geoscience Information System (GSIS).

The following eleven GSIS-related projects were conducted during the year.

Base Maps (M.P. Rennick and D. Richard) Customized 1:20 000 scale base maps were provided to provincial field geologists working on the Restigouche and other mapping projects, to federal geoscientists, and to industry. These maps were produced by combining Service New Brunswick 1:10 000 scale bases and contours from the Digital Elevation Model, and adding updated road network information obtained from Timber Management Branch. These maps contain selected features of the original Service New Brunswick base.

Geochemical Surveys (M.P. Rennick and K. Mersereau) Provided digital files of hydrographic and topographic base map layers, and digitized sample locations with sample results as requested, for public distribution. The GIS Section staff have been customizing these files upon request.

Bedrock Geology Maps (K. Mersereau and D. Richard) Maps for the Restigouche and other bedrock-related projects were digitized and hard copies were produced for public distribution. A few bedrock geology maps completed before 1990 were also digitized depending upon the priority and availability of digitization resources. The first priority is to digitize all bedrock geology maps produced after 1990, with current field projects as requested. The production of a new digital 1:500 000 bedrock geology map of New Brunswick (NR-1, 2000 Edition), was completed and released at the Annual Review of Activities.

Surficial Geology Maps (K. Mersereau) All the surficial geology maps completed since 1990 are being digitized for public distribution.

Industrial Mineral Maps (K. Mersereau) All maps from the Aggregate Resource Atlas, consisting of geology and aggregate resources, are being digitized as priorities allow and are available for public distribution.

Digital Mineral Claim Management System Andy LeBlanc has continued to update the mineral claim maps using the Digital Claim Management System. Standard 1:50 000 and 1:150 000 hard-copy mineral claim maps are produced in Fredericton for public distribution and internal use.

Assessment Work Location Maps for New Brunswick These 1:50 000 maps continue to be updated by Ken Mersereau.

Geoscience Publication Indexing System (GPIS): During the initial probing study of the Integrated Mineral Resource Management System (IMRMS), the GPIS was identified as the first priority. Developed in 1996, the GPIS is designed to provide users with a means for quickly searching a large database containing publication information. Included is geoscience information on New Brunswick published by the Geological Survey of Canada (maps and reports), by the mineral industry (mineral exploration reports of work), and by scientific journals (papers). Copies of all publications are held by the Minerals and Energy Division. Queries may include map scales, repository information, authors, subject key words, and prices.

Minimum hardware and software requirements of the system are: IBM-compatible PC with 486 microprocessor, Microsoft Windows 95, 16 MB RAM, hard drive with 500 MB of available space, mouse, SVGA colour monitor, and printer.

By the summer of 1996, the programming was completed and existing data were transferred into the system. Each of the three main databases (list of publications, geoscan index, and bibliography) were edited and updated by Shasta Merlini and Lori Fellows. Rob Stewart has updated the database from Access95 to Access97, and created a new data input utility.

Sample and Analysis Subsystem As defined in the IMRMS study, this system will manage all data associated with physical samples collected from the field as well as the results of analyses performed on those samples. As a first step, the system will bring the many existing files containing geochemical analysis data into a common database. It will provide the necessary input, inquiry, and output functions for that database.

The standard structure will accommodate the results of geochemical analysis performed on drill core, water, stream silt, till, and rock samples. This will maximize usability of geochemical data within the Minerals and Energy Division and improve the mechanism for exporting this data to industry clients.

The project team consisted of Greg Crouse (Drill Core and Samples), Chris Gasper (System Analyst), Rao Irrinki (Project Leader), Chris Leadbeater (Database Administrator, Programmer/Analyst), Malcolm McLeod (Lithogeochemistry–Sussex), Toon Pronk (Geochemistry), Paul Rennick (GIS Specialist) and Jim Walker (Lithogeochemistry–Bathurst). The first phase of the project, which detailed the database structure, was completed by September, 1997.

The geochemistry database has been loaded with sample data, which were used to test the importing and exporting utilities. Network connections have been made for Paul Rennick and Toon Pronk in order to input data into the database.

Similar to the geochemistry database, a geophysical database project was initiated. A project team consisting of Chris Gasper (System Analyst), Rao Irrinki (Project Leader), Chris Leadbeater (Database Administrator, Programmer/Analyst), and Paul Rennick (GIS Specialist), was formed in late 1997. The database was built and tested by Paul Rennick. Custom reporting and input utilities remain to be created.

Mineral Claim Tracking System This system, which has been utilizing dBase III to manage mineral-claims-related information, has been upgraded to a relational INGRES database (RASMIN), by Phil Butland of Information Services and Systems. Based on the scope and objectives of the IMRMS, the Minerals Resource Allocation System will manage all resource rights, including mineral claims, leases and agreements. The system is now being used, with the need to create additional custom querying and reporting utilities. A utility to incorporate a graphical interface to the digital Mineral Claim Maps is to be developed by Information Services and Systems.

Electronic Access (M.P. Rennick, R. Stewart) The project entailed the programming of custom sets of query pages that will allow access, through the internet, to four of the Geological Surveys Branch Microsoft Access databases. The GPIS, Mineral Occurrence File, Bore Hole Catalog and the Drill Core Storage databases were all set up with customized WEB-based pages that initiate database queries, that would return the results in HTML code, to the client. It is planned that these pages will be added to the Minerals & Energy Division Internet site in the next year.

GEOSCIENTIFIC EDITORIAL SERVICES (Barbara Carroll) The Geoscience Editor for Minerals and Energy Division is responsible for editing geoscience maps and editing and formatting geoscience reports submitted by Division staff for publication as Mineral Resource Reports or Information Circulars. The third category, Open File, is published as received. A system of scientific/technical review has been put into place that ensures that peers review manuscripts before they are submitted for publication. Annually prepared publications include: "Preliminary Review of New Brunswick's Mineral Industry," "Rétrospective préliminaire de l'industrie au Nouveau-Brunswick," "New Brunswick's Mineral Industry," "Current Research," and "Abstracts/Résumés." In 2000, 22 reports and 45 maps were edited and/or prepared for publication.

CONFERENCES / WORKSHOPS Paul Rennick attended the Canadian Geoscience Knowledge Network (CGKN) workshop hosted by the Geological Survey of Canada–Calgary Division, in June, and gave demonstrations of the Geoscience Publication Indexing System database as well as electronic access to Geological Surveys Branch datasets using the CARIS-based Spatial Fusion. Greg Crouse and Paul Rennick presented poster displays at the Review of Activities. Paul Rennick attended a Metadata workshop held in Amherst, and the Metadata Catalog workshop held in Ottawa.

Barbara Carroll participated in the Mining Week activities held at the New Brunswick Museum in Saint John in May, 2000. In September, she attended the 30th Annual Convention of the New Brunswick Branch of the Canadian Institute of Mining, Metallurgy and Petroleum in Bathurst, New Brunswick. She also prepared a display on the decorative uses of various rocks and minerals that was exhibited at the annual Review of Activities of the New Brunswick Minerals and Energy Division held in Fredericton in November.

COMMITTEES Paul Rennick was a member of the Geographic Information System subcommittee, the Georeferenced Civic Address Data Base working group, the Information Technology Advisory Committee, and the CGKN Metadata Catalog working group. Greg Crouse was the committee coordinator of the Mineral Exploration Stimulation Program and New Brunswick Exploration Assistance Program.

Mines Branch

Sam McEwan, Director

The Mines Branch is responsible for the allocation of rights and development of New Brunswick's mineral, energy, and Crown peat and aggregate resources. These natural resources are administered under the following legislation and respective regulations: the *Mining Act*, *Quarriable Substances Act*, *Oil and Natural Gas Act*, *Bituminous Shale Act* and the *Ownership of Minerals Act*. The Branch also has responsibility for the *Underground Storage Act* and the *Pipeline Act*. The Branch provides a variety of geoscientific, technical, and support services to the clients and staff of the Minerals and Energy Division. The Branch is composed of four sectors: Resource Rights Allocation, Resource Approvals, Mineral Information Services, and Peat.

The Branch is primarily located in Fredericton; however, two staff positions are located in the Bathurst Regional Office. The principal activities of the Branch include the registration and maintenance of records for mineral claims staked in the Province. The review and approval of applications for mineral, aggregate, energy and peat resource developments and pipelines. These include mines, pits and quarries, peat extraction, oil and gas exploration and production facilities, pipelines, underground storage and bituminous shale developments. The monitoring of resource operations to ensure optimal extraction and use of the resource as well as compliance with approved feasibility studies and reclamation plans. The Branch also manages a program intended for the promotion of adding value to the resources under its administration. For the 2000–2001 fiscal year, the Branch had an A-base budget of $1 228 700 and 15.0 full-time equivalent positions. Actual expenditures are given in Table 1.

Peat

The Peat Resources Geologist, Jacques Thibault, is responsible for managing the peat resources of the Province and for monitoring activities on 33 commercial peat leases. The peat resources geologist coordinates the peat lease application process. He also compiles statistics on the sector and provides expert advice to government, industry and the public in general.

The Province of New Brunswick is the principal peat producing area of Canada with about 35% of the national output. In New Brunswick, peat is defined as a quarriable substance and belongs to the landowner. About 70% of potentially commercial peatlands occur on Crown lands, which explains why the provincial government plays a major role in the administration of that resource. The current focus of the province's peat development strategy is on resource allocation, conservation of representative natural peatlands, and restoration of abandoned commercial peat operations.

CONFERENCES / WORKSHOPS In August, Jacques Thibault attended the 11th International Peat Congress held in Québec City and presented, in collaboration with Dr. Line Rochefort (Laval University) a paper entitled "Peatland Conservation, Extraction and Restoration: Innovative Approach to Mitigation of Impact in New Brunswick and Québec." With the assistance of colleagues Lee Swanson (Fish and Wildlife Branch) and Gail Chmura (McGill University), Jacques organized a four-day field trip to New Brunswick's coastal peatlands and wetlands for 30 conference participants coming from 10 countries. Later that month, Jacques gave a presentation on the peat industry to a group of teachers in Shippagan, New Brunswick. In November, Jacques gave a short course on the many facets of peat and peatlands at the Collège communautaire du Nouveau-Brunswick, Grand-Sault, New Brunswick.

COMMITTEES Jacques Thibault is a member of the Cranberry Task Team, which is chaired by the Department of Agriculture and Rural Development. The task team consists of personnel from key provincial departments and focuses on promoting the development of a cranberry industry in New Brunswick. Several development proposals are associated with peatlands. Jacques is also a member of an interdepartmental committee formed to review all provincial policies concerning the peat industry.

Resource Rights Allocation

In 2000, Resource Rights Allocation staff (Figure 1d) consisted of Ron Shaw (Manager, Recorder), and Ron Phillips (Energy Resource Rights Administration–oil, natural gas, bituminous shale and underground storage). Fred Edney, Deputy Recorder, retired during the year. This position was vacant the remainder of the year.

Reports of work, submitted to the Resource Rights Allocation Section in accordance with the *Mining Act, Oil and Natural Gas Act, Bituminous Shale Act,* and *Underground Storage Act,* are checked for

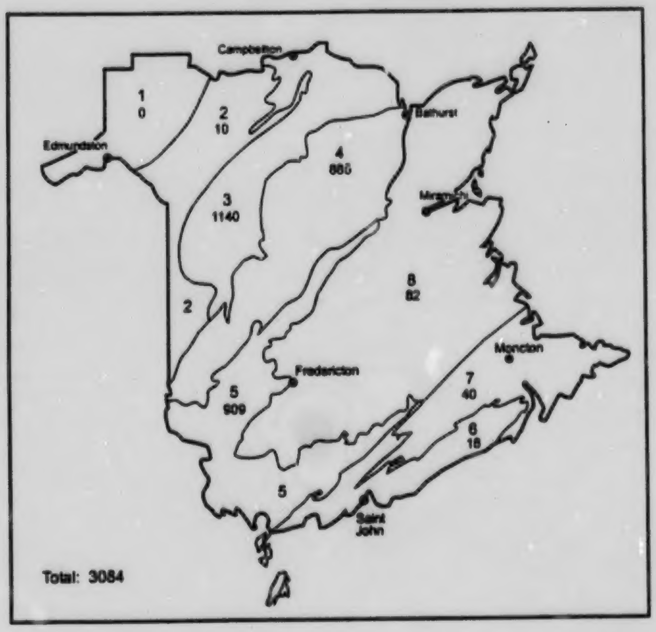
Table 2. New Brunswick Mineral Resource Allocation and Exploration Statistics, 1999 and 2000

Mineral Resource Allocation (total in effect at year's end unless specified for the year)	1999		2000	
	Number	Hectares	Number	Hectares
Mining Act				
Prospecting Licences Issued (year)	n/a	---	56	---
Prospecting Licences Holding Claims	n/a	---	156	---
Claims Recorded (year)	1 771	28 336	3 084	49 344
Claims Renewed (year)	12 641	202 256	11 946	191 136
Claims Expired (year)	4 822	77 152	2 905	46 480
Claims in Effect	14 884	238 144	15 030	240 480
Coal Agreements	4	58 917.6	4	58 917.6
Potash Exploration Agreements	0	0	0	0
Potash Leases	2	20 024.2	2	20 024.2
Mining Leases	17	12 528	17	12 528
Total Agreements and Leases (above)	---	91 469.8	---	91 469.8
Total in Effect	---	329 613.8	---	331 949.8
Oil and Natural Gas Act				
Licences to Search	28	624 978	26	592 091.5
Leases	5	5 744	6	7 890.1
Bituminous Shale Act				
Licences to Search	0	0	0	0
Development Permits	2	1 077	0	0
Leases	0	0	0	0
Underground Storage Act				
Storage Exploration Licences	7	28 791	7	28 791
Storage Licences	0	0	0	0
Construction Permits	0	0	0	0
Quarriable Substances Act				
Quarry Permits	233	---	256	---
Quarry Leases	15	629.62	16	608.155
Peat Exploration Licences	4	1955	4	1955
Peat Leases	33	13 303.6	33	13 303.6
Peat Options	14	4 604	14	4 604

Exploration Summary	1999		2000	
	Work Reported	Value	Work Reported	Value
Mining Act				
Reports of Work (RW)	113 reports filed	$3 969 329	91reports filed	$8 193 207.70
Drilling Reported in RW	143 holes (23 982 m)	$1 598 834	224 holes (17 198 m)	$1 417 775.71
Potash Exploration	---	0	---	0
Oil and Natural Gas Act	4 wells (5808 m*)	n/a	11 well (21 900 m*)	$10 000 000
Bituminous Shale Act	1 well (387 m)	n/a	---	0
Underground Storage Act	---	0	---	0

n/a not available
* licensed depth

October , 2001



Geological zones*:
1. Edmundston
2. Kedgwick
3. Tobique–Chaleur; Elmtree
4. Miramichi North (Bathurst Mining Camp); Miramichi South
5. Fredericton; Passamaquoddy
6. Saint John; Fundy Basin
7. Moncton Subbasin (Maritimes Basin)
8. Carboniferous Cover (Maritimes Basin)

* This is a simplification of the recently revised terrane map of New Brunswick.

Figure 4. Number of claims recorded, by geological zone, in 2000.

compliance with the relevant regulations and work credits are applied to appropriate properties. Upon acceptance, the reports are forwarded to the Mineral Information Services staff for microfilming, and storage. Mineral resource allocation and exploration statistics are presented in Table 2 and Figure 4.

An industry report citing shortcomings in the Province's land tenure system of the *Oil and Natural Gas Act* prompted a review by government. As a result, work commenced to develop an efficient, workable and appropriate land tenure system that encourages hydrocarbon exploration and development while ensuring that there is fair compensation to both the Crown and industry. An objective was to have amendments drafted for the spring session of the legislature.

COMMITTEES Ron Shaw attended the annual Provincial/Territorial Mining Rights Committee meeting in Sudbury in September of 2000. The committee is an informal forum established to share information regarding mining rights administration across Canada. In sharing such information, it is hoped that each jurisdiction would, over time, develop similar methods for dealing with similar mining rights situations.

Ron Phillips attended the Canadian Association of Petroleum Landmen (CAPL) Conference and Intergovernmental Petroleum Tenure Committee (IPTC) meeting in Halifax in September 2000. CAPL assists industry in the development and management of Canada's petroleum resources and IPTC makes up the provincial regulatory authority for Canada's petroleum resources.

CONFERENCES In April of 2000, Ron Phillips attended the Prospect Exchange, sponsored by Canadian Association of Petroleum Landmen in Calgary. In May of 2000, Ron Shaw attended the Mining Millennium 2000 Conference in Toronto.

Resource Approvals

Manager, resource approvals (John Griggs) The Manager, Resource Approvals, is responsible for work of both a specific and general nature relating to mining, quarrying, pipelines and hydrocarbons in New Brunswick. Responsibilities include the monitoring of mining activities; permitting of oil and gas exploration and production; permitting of pits and quarries; compilation of technical and mining statistics; administration of the *Mining Act, Quarriable Substances Act, Pipe Line Act* and *Oil and Natural Gas Act*; review and evaluation of feasibility reports and annual mine plans; and administration of projects funded under the provincial Value-added Mineral Processing Program. In addition to these specific tasks, the mine engineer liaises with the federal government and other provincial governments on matters related to the mining industry.

During 2000, the Manager, Resource Approvals, monitored mine-related activities and reviewed a number of mine plans received in compliance with the *Mining Act* (Section 25, Regulation 86-98). He also reviewed several issues relating to pits and quarries. He was involved in continuing efforts to update Provincial legislation on hydrocarbons. Numerous submissions under the Environmental Impact Assessment Regulation of the *Clean Environment Act* were also reviewed.

Issues requiring the attention of the mine engineer included a review of the status of Breakwater's Caribou mine (see Figure 9 in Chapter 3 for mine locations), which shut down in August 1998 in response to continuing metallurgical problems and depressed metal prices. Potash Corporation of Saskatchewan–New Brunswick Division (PCS) continued compacting fine-grained material from Saskatchewan at the former Potacan facilities, which were acquired by PCS after flooding caused the closure of the Cassidy Lake mine in 1997. PCS reports continued progress in controlling a brine inflow to the mine, which was first identified in 1998. NovaGold Resources Inc., the parent company of Murray Brook Resources Inc., initiated and completed the reclamation of the Murray Brook mine site. There was no change in the status of ADEX's Mount Pleasant property, which remains under care and maintenance as the company continues discussions with potential investors. Noranda's Brunswick mine suffered a temporary closure of one of the main production blocks as a result of severe seismic events. Intensive ground control measures are being taken. It is expected that full rehabilitation of the zone will be achieved. Reclamation activities continue at Noranda's Heath Steele mine (Figure 3: 9), which closed permanently in October 1999 because of depletion of reserves.

Hydrocarbons Engineering The position of Hydrocarbons Engineer is currently open. The incumbent is responsible for the review and approval of new pipelines, changes to existing pipelines, review of drilling operations, and generally ensuring the compliance of pipeline and hydrocarbon drilling operations with the legislation.

Pipelines The maintenance and repair program continues on the Lorneville pipeline (Figure 3: 10). The pipeline operated normally in 2000 with no incidence of leaks.

An application was made by NB Power to convert the Coleson Cove thermal generating station (Figure 3: 11) to an Orimulsion-fuelled facility. This could involve either the existing Lorneville pipeline, or a new line built for the purpose. The proposal is being reviewed by the responsible agencies, including the Public Utilities Board, the Department of Environment and Local Government, and the Department of Natural Resources and Energy.

Drilling During 2000, a significant showing of natural gas was discovered close to the Potash Corporation of Saskatchewan (PCS) potash mine in Penobsquis (see Figure 9 in Chapter 3 for mine location). The well was drilled by Corridor Resources Inc. of Halifax, in partnership with PCS. Gas was also encountered in a second (step-out) well. A third hole is presently being drilled as part of a program to delineate the gas pool.

Columbia Natural Resources Canada, Ltd. (see Figure 6 in Chapter 2 for location) drilled nine wells in Albert and Westmorland counties. Production testing is currently underway on four of the wells and exploration drilling continues at the Monteagle site west of Moncton.

RECLAMATION ENGINEERING (Cory Neumann) The Reclamation Engineer is responsible for departmental coordination of the reviews of mine reclamation and closure plans, annual reclamation progress inspections, and coordination of the provincial mine approval process as it deals with environmental issues, exploration, and mine site audits. In addition, the reclamation engineer liaises with the federal and provincial governments and industry on matters related to mining and the environment.

Issues requiring the attention of the reclamation engineer during 2000 were the continuing closure and reclamation of the Heath Steele mine (Figure 3: 9), the final reclamation of the Murray Brook mine and ongoing reclamation at NB Coal Limited operations (see Figure 9 in Chapter 3 for location of mines). Requests for closure of several NB Coal mine sites were reviewed. A closure plan for Noranda's Brunswick No. 12 mill site and mine was reviewed and a number of environmental and reclamation issues related to CanZinco's Caribou mine were reviewed by the Standing Committee on Mining and Environment. Gordex Minerals Limited's Cape Spencer property (Figure 3: 12), APOCAN's Lake George antimony property and ADEX's Mount Pleasant mine (see Figure 9 in Chapter 3 for location of mines) remained inactive during 2000.

Most mining companies have maintained their reclamation on disturbed land in accordance with their approved schedule. Reclamation and remediation progress is ongoing at several properties, with some moving to final closure.

QUARRIABLE SUBSTANCES ADMINISTRATION (Mitchell O'Donnell) Quarriable substances on Crown lands in New Brunswick are administered under the *Quarriable Substances Act*. The Quarriable Substances Administrator controls, through the issuance of permits and leases, extraction operations on Crown lands and on that area of the shoreline that lies within 300 m above and 300 m below the mean high water mark.

In 2000, 2 300 989 t of quarriable substances were extracted from pits and quarries on Crown land in New Brunswick (2 444 594 t in 1999). Revenue from royalties amounted to $575 247. Quarry lease rentals amounted to $30 407.75 and application fees amounted to $4150.

A significant amount of the overall tonnage removed this year occurred in the Coles Island area (Figure 3: 13) as a result of the ongoing construction of the new Trans-Canada Highway. St. Isidore Asphalt and Caldwell and Ross opened a total of five sandstone quarries in the area with approximately 900 000 t of material being excavated. Other highway and infrastructure needs across the Province resulted in an additional 900 000 t of material being excavated from Crown land.

The construction of the natural gas pipeline lateral to Saint John resulted in 5 quarry permits being issued to Bannister Pipelines with 53 000 t of material being removed from Crown pits for pipeline construction.

Forestry companies removed approximately 245 000 t of material for their ongoing forest road construction operations across the Province.

Other construction needs across the Province resulted in the removal of approximately 200 000 t of material from pits and quarries on Crown land.

The inventory of Crown land pits and quarries continued in 2000, with approximately 329 sites being inspected, bringing the total number of inventoried sites to 645.

COMMITTEES John Griggs is a member of the Federal–Provincial Committee on Mineral Statistics, which coordinates the efforts of Natural Resources Canada and the provincial governments in the timely collection of relevant mineral statistics while minimizing the inconvenience to the respondent. The annual meeting, which is usually held in Ottawa in September, was postponed to the spring of 2001. Cory Neumann is a member of the University of New Brunswick Groundwater Studies Group, which looks at groundwater issues of interest in New Brunswick and the Maritimes and serves as a vehicle for information exchange between different levels of government, educational institutions, research institutions, and the private sector. Mr. McEwan is a member of the Intergovernmental Task Force on Offshore Mining, which is seeking a means of developing an Offshore Minerals Management Regime.

Sam McEwan and John Griggs are members of the Science and Technology Intergovernmental Working Group. This is a national committee consisting of provincial and federal representatives, which provide input to the federal government regarding their research and development programs on mining technology, which are of mutual interest to all provinces within Canada. While attending the Mining Millenium 2000 Conference, Mr. McEwan also attended the Intergovernmental Working Group on Mining, Minerals and Metals Science and Technology in Toronto.

Sam McEwan, John Griggs, and Cory Neumann are members of the interdepartmental Standing Committee on Mining and the Environment, which was established in 1989. The committee meets regularly during the year to address mining and environment issues. Mr. McEwan and Mr. Griggs are also members of the Interdepartmental Committee on Mineral Resources, a provincial committee with representatives from the departments of Investment and Export; Environment and Local Government; and Natural Resources and Energy. This committee addresses mining issues common to all three departments.

CONFERENCES/WORKSHOPS/COURSES In May 2000, John Griggs participated in a course on blow-out prevention in Calgary, Alberta. Sam McEwan attended the Mining Millennium 2000 Conference in Toronto in March 2000. This conference was a special, one time event to mark the end of the millennium and was a joint conference of the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), and the Prospectors and Developers Association of Canada. In September 2000, John Griggs attended the CIM Convention and technical sessions in Bathurst, New Brunswick.

Mineral Information Services

The section is made up of two work units: Geoscientific Cartographic Services and Geoscientific Information Services. This Section is responsible for providing a variety of geoscientific, technical, and support services to the staff of the Minerals and Energy Division and to the clients of the Department of Natural Resources and Energy. Specifically, the staff (D.J.J. Carroll, C.M. McNeill-Dobbelsteyn, T.L. Leonard, L.G. Johnson) provides assistance to the public and the mineral industry by supplying publications on the geology and mineral resources of the Province.

Some other responsibilities include publicizing the Division's extensive electronic and hard-copy geoscientific database and promotion of mineral exploration in New Brunswick. The collection and collation of mineral exploration expenditures is also carried out by this unit. In addition to providing services to the mineral industry and public sectors, the section provided cartographic support to the staff of the Division.

The Mineral Information Services Section continue to work closely with the Public Service Section of the Department to ensure that our clients (mainly mining, mineral exploration and engineering sectors) are continuing to receive quality service when it comes to the acquisition of geoscience publications.

In 1999, a review of the Geoscience Publication Indexing System (GPIS) had taken place to determine the effectiveness of the GPIS system in assisting people to retrieve references for documents within the Geological Surveys Branch library of documents. The conclusion of the study indicated that although the GPIS could be a functional tool to assist our staff; a more appropriate system should be developed so that a broader-based client group could access the data. The result was the development of a Web-based data search system. By year's end, the system was up and running on a test basis on the Department's intranet site. In addition, new information mainly of a publication report type, was regularly being added.

Publications An important function of the Mineral Information Services unit is the dissemination of geoscience publications to the mineral exploration industry as well as to engineering, consulting, and environmental firms. Although the actual function of assisting clients in the procurement of geoscience data is now the responsibility of the Public Service Section, the Mineral Information Section continues to monitor our product distribution and client base.

In 2000, approximately 500 requests for geoscience information were answered. The majority of these requests came from three main user groups: the mineral industry, consultant and engineering groups, and agencies of the federal and provincial governments. There continues to be an increase in the number of requests for geoscience information from the oil and gas sector. This change is due primarily to the heightened interest in exploration for nonrenewable resources in southeastern New Brunswick.

Mineral Information Services prepared 9 publication notices that were sent to more than 300 clients on our mailing list. These notices publicized 98 plates and 28 geoscience and technical reports. The following is a summary of the contents of the 2000 notices.

January:	*List of new publications available*: 11 maps, 6 reports and 4 Geological Survey of Canada publications.
April:	*List of new publications available*: 8 maps, and 6 reports.

Timed release: OF 2000-3 (Till geochemistry of the New Brunswick part of the Woodstock (NTS 21 J/04) map area, Carleton county: site and geochemical data.) Release date: April 25, 2000.

June: *Timed release:* Plates 2000-1A to 2000-4H and 2000-5A to 2000-15B (2000 release of multiparameter airborne geophysical survey data, Kedgwick area, NTS 21 O/11, 12, 13 and 14). Release date: June 15, 2000.

Timed release: NBDNRE OF 2000-6/GSC-OF 3889 and Plates 2000-21A to 2000-22D (2000 release of multi-element geochemical survey data, NTS 21 O/12, 13). Release date: June 15, 2000.

July: *List of new publications available:* 12 maps, 5 reports and 2 Geological Survey of Canada publications.

Notice of Information: 25th Annual Review of Activities dates , FTP site, Web site and employee e-mail address change.

August: *Registration package*: 25th Annual Review of Activities preliminary agenda, field trip notice, workshop notice, registration form, etc.)

September: *Notice of Information:* 25th Annual Review of Activities revised agenda and Monday night events)

November: *List of new publications available:* 5 maps, 9 reports and 2 Geological Survey of Canada publications.

The distribution and sale of geoscientific publications from the Fredericton office in 2000 totalled 3797 documents, a slight decrease from the 1999 total of 4022. Staff received 63 requests for photocopies of mineral exploration reports of work, oil and gas lithological logs as well as other hard-copy and microfiche data. These orders represented a total of 6225 pages of text and 2368 maps. Revenue generated from the sale of publications and photocopies for all three Division offices (Bathurst, Fredericton, Sussex) in 2000 was $16 795, a 10.7% decrease from 1999. More than 80.4% of the publications sold in 2000 were requested by the mineral industry and engineering sectors. Once again as in 1999, the actual sale of digital data files was down in 2000. This year 7 requests were received from 6 separate clients resulting in approximately 14 digital files being sold and $340 being generated in revenue. This total revenue figure represented a 60.5% decrease from 1999 sales.

Mineral Exploration Reports of Work A total of 91 mineral exploration reports of work were filed with the Resource Rights Allocation Section in 2000, which represented a 19 % decrease from the 113 reports submitted in 1999. The dollar value of work reported in these documents ($8 193 208) was up 106 % from that reported in the previous year ($3 969 329). To date, 5394 reports of work have been filed with the Resource Rights Allocation Section. They are maintained by Mineral Information Services.

Annual Exploration Surveys Mineral exploration expenditure surveys are carried out by Natural Resources Canada, assisted by the New Brunswick Department of Natural Resources and Energy (Mineral Information Services Section). The exploration expenditures are collected through two surveys each year. The Preliminary/Forecast expenditure survey in September was followed by the Actual survey in January. Table 3 summarizes the results of the most recently available surveys. Figure 5 presents historical data on mineral exploration expenditures for New Brunswick.

Table 3. Summary of Mineral Exploration Expenditure Surveys
(Source: Natural Resources Canada)

Form No.	Survey Name	Number Surveyed	General Exploration	Mine Site Exploration	Total*
Ex-1	Preliminary '99	56	$ 6 330 000	$ 2 170 000	$8 500 000
Ex-3	**Actual '99**	**54****	**6 900 000**	**3 100 000**	**10 000 000**
Ex-1	Forecast '00	56	6 230 000	2 170 000	8 400 000
Ex-1	Preliminary '00	57**	8 400 000	2 000 000	10 400 000
Ex-3	**Actual '00**	**n/a**	**n/a**	**n/a**	**n/a**
Ex-1	Forecast '01	57**	7 700 000	2 500 000	10 200 000

n/a not available
* Survey includes overhead expenditures
** Individual claim holders grouped and survey results combined on one form

Public Awareness / Promotion The Mineral Information Section is responsible for publicizing the Minerals and Energy Division's extensive geoscience information base and encouraging investment in our provincial mineral resources. Meetings such as the 2000 Annual Cordilleran Exploration Roundup in Vancouver, the 68th Annual International Convention and Trade Exhibition of the Prospectors and Developers Association of Canada in Toronto (March) and the 25th annual Review of Activities in Fredericton (November) continue to be the main targets of our promotion campaign in 2000.

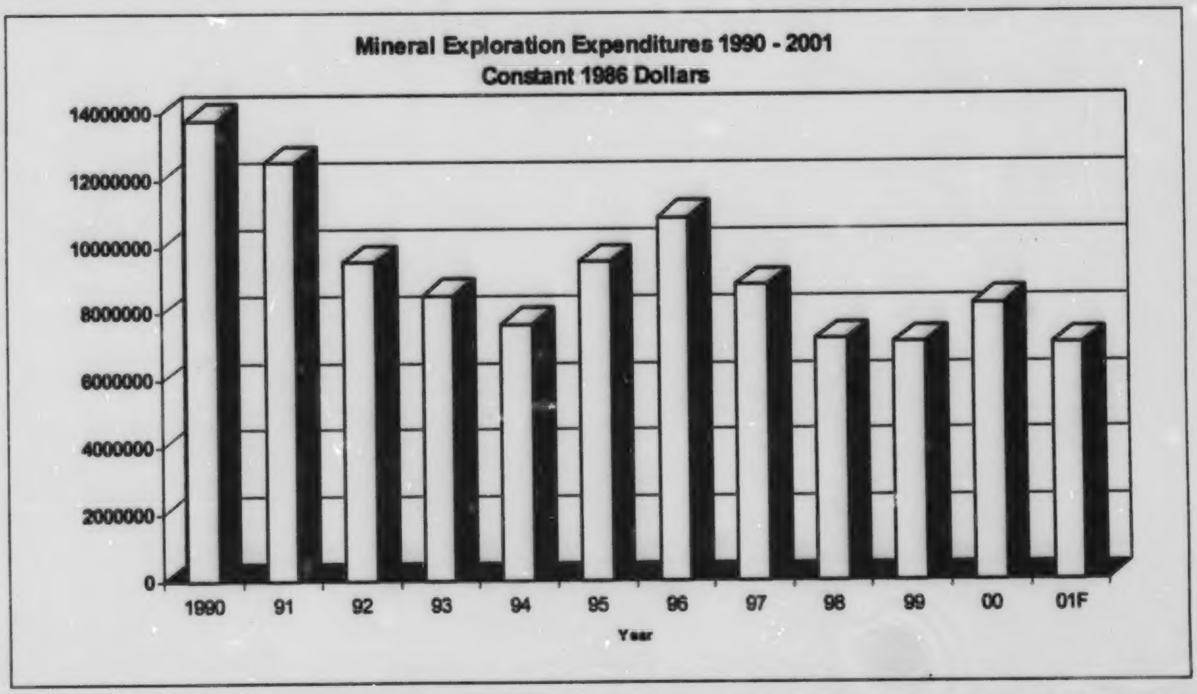


Figure 5. Total annual expenditures (general and mine-site exploration, no overhead) by mining and exploration companies in New Brunswick, 1990 to 2001F. Source: Natural Resources Canada ($1986=100). Abbreviation: F (forecast).

Attendance at the Annual Cordilleran Exploration Roundup in Vancouver (January 24–28, 2000) by two staff members, Malcolm McLeod and Don J.J. Carroll, represented the fifth opportunity for the Division to tap into the western Canadian market as part of its promotional strategy to attract mineral exploration investment dollars to New Brunswick.

In addition to Division staff, the New Brunswick delegation at the Cordilleran Roundup included Wayne Lockhart and Rob van de Poll. This year, as in 1999, the New Brunswick Prospectors and Developers Association did not send a representative to the Cordilleran Roundup, but instead supported two members to attend the March 2000 Prospectors and Developers Association conference in Toronto.

The second major conference that the Division attended in 2000 was the Annual International Convention and Trade Exhibition of the Prospectors and Developers Association of Canada (PDAC), which was held in Toronto on March 4–7. Once again, the venue for the Trade Exhibition was the Metro Convention Centre. The focus of the New Brunswick booth was on gold environments in New Brunswick.

The Geological Surveys Branch also continued its efforts to financially assist members of the New Brunswick Prospectors and Developers Association (NBPDA) whose mineral properties warrant broader attention and publicity. Two prospectors, Frank Ross and Emilio Doiron were provided financial support to attend the 2000 PDAC conference; the Department also provided financial support to the NBPDA's Atlantic Canada Rock Room. In addition to these two prospectors, the New Brunswick contingent in the Rock Room included K.D.A. Whaley (Mactaquac Mining Limited), and Robert Donovan.

In 2000, several New Brunswick service sector companies exhibited at the PDAC convention in Torono, including Thibault & Associates, EMR Technologies, Major Drilling Inc., Universal Systems and the New Brunswick Research and Productivity Council. Exploration companies that highlighted New Brunswick properties in the Investor's Exchange were Freewest Resources Canada Inc., Eastmain Resources Inc., and Slam Exploration Ltd.

Advertisements / Editorials An editorial was published in the Prospectors and Developers Association of Canada Digest (March 2000): "Base Metals Still Draw Explorers to New Brunswick."

Review of Activities In 2000, the Minerals and Energy Division celebrated its 25th anniversary of hosting the annual Review of Activities. To mark this occasion, our delegates were offered an expanded social program. In addition, a special 25th anniversary logo was designed, a commemorative pewter pin was commissioned, and a unique conference literature bag with the special anniversary logo was also produced for this occasion. The first ever Prospector's Pub, decorated accordingly, was held on Monday night, with music provided by the band Mackinaw; the event attracted 130 people.

Other related activities included a reception for industry representatives, hosted by the Hon. Jeannot Volpé, Minister of Natural Resources and Energy.

The program for this year's Review of Activities commenced with a pre-meeting geological field trip to southeastern New Brunswick. The focus of the field trip was the important hydrocarbon sector. Led by Clinton St. Peter, the purpose of the field trip was to demonstrate two essential elements of a petroleum system: source rocks and reservoir rocks. The field trip attracted more than 30 participants from various parts of New Brunswick and eastern Canada.

A pre-meeting workshop led by Professors David Lentz (University of New Brunswick) and Marcos Zentilli (Dalhousie University) was conducted at the Geology Department of the University of New Brunswick on Monday, November 6. The objective of this one-day workshop was to give participants an overview of the characteristics of porphyry Cu–Mo–Au deposits. Twenty-six people attended.

Evening activities began with the traditional reception hosted by Business New Brunswick.

On Tuesday, the technical program offered the delegates a cross section of talks by approximately 26 presenters from the mineral and hydrocarbon exploration and mining industry; the federal, provincial, and state governments; universities; and geoscience organizations. The opening speakers were the Hon. Jeannot Volpé, Minister of Natural Resources and Energy, Jean Desrosier of Noranda Inc., David Comba of the Prospectors & Developers Association of Canada and Rao Irrinki, Director of the Geological Surveys Branch. Steve McCutcheon and Malcolm McLeod gave updates on the activities in the northern and southern regions of New Brunswick. The final presentations of the morning were by the Maine State Geological Survey, the chairman of the University of New Brunswick Geology Department and by Division staff, Clinton St. Peter (hydrocarbons) and Tim Webb (industrial minerals). The afternoon technical session consisted of talks by several Geological Surveys Branch staff, Denis Lavoie of the Geological Survey of Canada–Québec Division and Acadia University professor, Sandra Barr.

The traditional Tuesday evening banquet, attended by more than 150 individuals, featured Dr. R.R Potter as guest speaker. Dr. Potter (Dick), who was a former Chief Geologist, Director, and then Assistant Deputy Minister for the Minerals and Energy Division, spoke on the topic of: "Looking Forward in the New Millennium."

Following on the success of the 1999 annual Review of Activities, a special industry forum was held on Wednesday morning. The session offered a mix of topics, including those that touched on gold exploration in southwestern New Brunswick, hydrocarbon exploration in southeastern New Brunswick, brine injection studies, the Brunswick Smelter Industrial Plan, reclamation of the Murray Brook mine, natural gas (a new energy source in New Brunswick), development of value-added chemicals, and the adaptation of deep-penetration geochemical technologies.

This year, more than 50 exhibits and posters were displayed by federal and provincial government agencies, the mineral industry, prospectors, service companies, and the various associations. Once again, the New Brunswick Core Shack provided prospectors and junior mining companies with an opportunity to promote their mineral properties in New Brunswick. On the lighter side, an area of the display room was set aside for "Minerals as Art" exhibitors, a special interest item for the 25th anniversary. Members of the lapidary and rock hounding fraternity were invited to display their natural stones and products made from their collections. Although not attracting as many participants as hoped, this exhibit area was well received by the delegates.

The annual Review of Activities also provides an opportunity for mineral-related groups or associations to hold annual or general meetings. The New Brunswick Prospectors and Developers Association, the Association of Professional Geologists of New Brunswick, and the New Brunswick Mining Association arranged meetings for their membership in conjunction with the Review.

The 25th annual Review of Activities attracted 280 registrants, the highest numbers ever recorded at this conference.

Public Awareness: New Brunswick Mining Week One of the major public awareness activities for the mineral industry in New Brunswick is Mining Week, an annual promotion this year held on May 20–27, 2000. The official opening of the 12th annual New Brunswick Mining Week was held at the New Brunswick Museum in Saint John in conjunction with an exhibit called Minerals Matter, produced under the direction of Dr. R. Miller of the Museum.

Conferences / Workshops Don Carroll participated in the Annual Cordilleran Exploration Roundup in Vancouver, British Columbia in January and the Annual International Convention and Trade Exhibition of the Prospectors and Developers Association of Canada in Toronto, Ontario in March. He was in charge of organizing the Division's annual Review of Activities, held in Fredericton in November.

Energy Secretariat

Darwin Curtis, Director

The Energy Secretariat is responsible for fostering a secure supply of competitively priced energy through policy and regulatory activities relating to energy resources, infrastructure and markets. It is also responsible for promoting energy efficiency and air emissions reduction.

The Secretariat administers the following statutes and their related regulations: *Electric Power Act; Gas Distribution Act 1999; Public Utilities Act; Gasoline, Diesel Oil and Home Heating Oil Pricing Act;* and *Energy Efficiency Act.*

The Energy Secretariat, formed in the 2000–2001 Budget, currently operates as a branch within the New Brunswick Department of Natural Resources and Energy and is staffed with people formerly with the Mines and Energy Branch. It is a continuing body of experts that is responsible for developing and implementing energy policy and programs. All aspects of energy are covered including energy resource development, infrastructure and markets development and regulation. Energy efficiency and air emissions reduction are promoted through policies, programs and regulation. Energy supply and demand and commodity price statistics are compiled and analyzed.

COMMITTEES Darwin Curtis is a member of the National Air Issues Coordinating Committee (Climate Change) and attended regular meetings of the committee in St. John's, Newfoundland in May; in Halifax, Nova Scotia in July; and in Vancouver, British Columbia in September. He attended a special meeting on a federal–provincial framework agreement on climate change in Toronto in May. He is a member of the National Advisory Council on Energy Efficiency and attended a regular meeting in Montreal, Québec in December. He is also a member of the Pipeline Regulation Task Force and monitored its activities through conference calls.

CONFERENCES In September, Darwin Curtis attended the Annual Conference of Mines and Energy Ministers in Québec, and in October he attended the Joint Meeting of Ministers of Energy and Environment.

MINE TAXATION

Reporting to the Director of Financial Services, the Mine Assessor, Tanis A. Taylor, is responsible for the collection of all revenue due the province from mineral taxation and royalties.

The Mine Assessor is responsible for the administration of various Acts as they relate to the collection of taxes and royalties due the province, and is required to provide estimates for Central Government regarding the amount of revenue expected from each source. The Acts involved are: *Metallic Minerals Tax Act*, *Mining Act*, *Quarriable Substances Act*, and *Oil and Natural Gas Act*. Taxes and royalties collected in 2000–2001 amounted to $11 245 322. The metal mines subject to the *Metallic Minerals Tax Act* are required to make monthly payments, based on an estimate of the amount of taxes owing, and submit an annual tax return within six months of their year end. These annual returns are audited and assessment notices are issued. On-site audits as well as desk audits are conducted on companies subject to the *Metallic Minerals Tax Act* to determine compliance with the Act. On-site audits are also conducted on producers of other commodities to determine compliance with the appropriate acts.

Royalties are collected as follows: Monthly—coal, natural gas; Quarterly—potash, salt, oil; Semi-annually—peat moss, sand and gravel.

Provincial Mine Assessors and Mineral Revenue Assessors hold an annual conference in order to discuss matters of mutual concern associated with mineral taxation and collection.

MINING COMMISSIONER'S REPORT

Mr. John D. Hazen [P.O. Box 690, 132 Main Street, Bathurst, New Brunswick, E2A 3Z6; Telephone (506) 545-9220; Fax (506) 545-9224].

In 2000, a dispute between Joel Mercer (applicant) and Brookville Manufacturing Co. (respondent) was before the Mining Commissioner, Mr. Hazen.

MINERALS AND ENERGY DIVISION PUBLICATIONS

Reports

Allaby, G.M. 2000. Till provenance and glacial history of the Petitcodiac (NTS 21 H/14) map area, southeastern New Brunswick. New Brunswick Department of Natural Resources and Energy, Minerals and Energy Division, Open File 2000-8, 217 p.

Carroll, B.M.W. (editor) 2000. New Brunswick's mineral industry, 1999. New Brunswick Department of Natural Resources and Energy, Minerals and Energy Division, Mineral Resource Report 2000-3, 121 p.

Carroll, B.M.W. (editor) 2000. Preliminary review of New Brunswick's mineral industry, 1999. New Brunswick Department of Natural Resources and Energy, Minerals and Energy Division, Mineral Resource Report 2000-1, 23 p.

Carroll, B.M.W. (editor) 2000. Current Research 1999. New Brunswick Department of Natural Resources and Energy, Minerals and Energy Division, Mineral Resource Report 2000-4, 165 p.

J.I. Carroll Geology and geophysics of the east half of the Kedgwick map area (NTS 21 O/11 east), northern New Brunswick.

D. Keighley A preliminary sequence stratigraphy of the Horton Group, southeastern New Brunswick: interpretation of the Dawson Settlement Member of the Carboniferous Albert Formation, Shell Albert Mines #4 well.

R.F. Miller Late-glacial (Younger Dryas) Coleoptera from Saint John, New Brunswick (NTS 21 G/1).

B.V. Miller, S.M. Barr, and C.E. White New U–Pb ages from southern New Brunswick: preliminary results.

A.A. Seaman Till geochemistry and glacial dispersal in the eastern part of the Woodstock (NTS 21 J/04) map area, Carleton County, New Brunswick.

J.A. Walker A petrological / geochemical study of a section through the Pabineau sulphide deposit, Bathurst Mining Camp, New Brunswick (NTS 21 P/05W).

R.A. Wilson Geology of the Popelogan Lake–Lost Pine Lake area (NTS 21 O/15a and b), Restigouche County, New Brunswick, p. 91–136.

Carroll, B.M.W., Wandless, P., McNeill-Dobbelsteyn, C.M. 2000. Publications: Available from the New Brunswick Department of Natural Resources and Energy, Minerals and Energy Division (1985–1994). New Brunswick Department of Natural Resources and Energy, Minerals and Energy Division, 228 p. / Publications que les intéressés peuvent obtenir auprès du Ministère des Ressources naturelles et de l'Énergie du Nouveau-Brunswick, Division des ressources minières et de l'énergie (1985–1994). Ministère des Ressources naturelles et de l'Énergie du Nouveau-Brunswick, Division des ressources minières et de l'Énergie, 228 p.

Carroll, D.J.J., Wandless, P. and/et McNeill-Dobbelsteyn, C.M. (compilers / compilateur et compilatrices) 2000. PUBLICATIONS: Available from the New Brunswick Department of Natural Resources and Energy, Minerals and Energy Division (1995–). New Brunswick Department of Natural Resources and Energy, Minerals and Energy Division, Supplementary List, 132 p. / PUBLICATIONS : Publications que les intéressés peuvent obtenir auprès du ministère des Ressources naturelles et de l'Énergie du Nouveau-Brunswick, Division des ressources minières et de l'énergie (1995–). Ministère des Ressources naturelles et de l'Énergie du Nouveau-Brunswick, Division des ressources minières et de l'énergie, liste supplémentaire, 132 p.

Hassan, H.H. 2000. Digital compilation of gravity data for New Brunswick. New Brunswick Department of Natural Resources and Energy, Mineral and Energy Division, Open File 2000-1, 212 p.

McNeill-Dobbelsteyn, C.M. and Carroll, B.M.W. (compilers) 2000. Directory of goods and services for the exploration industry in New Brunswick (February 2000). New Brunswick Department of Natural Resources and Energy, Minerals and Energy Division, Information Circular 2000-1, 12 p.

McNeill-Dobbelsteyn, C.M. et Carroll, B.M.W. (compilatrices) 2000. Répertoire des produits et des services offerts à l'industrie de l'exploration minérale au Nouveau-Brunswick (février 2000). Ministère des Ressources naturelles et de l'Énergie du Nouveau-Brunswick, Division des ressources minières et de l'énergie, circulaire d'information 2000-2, 14 p.

Merlini, S.A.A. (compiler) 2000. New Brunswick computerized mineral occurrence database (revised 2000). New Brunswick Department of Natural Resources and Energy, Minerals and Energy Division, Open File 2000-10, digital mineral occurrence files.

MERLINI, S.A.A. (compiler) 2001. Available mineral properties in New Brunswick. New Brunswick Department of Natural Resources and Energy, Minerals and Energy Division, Reference 130 (January, 2001), 217 p.

NEW BRUNSWICK DEPARTMENT OF NATURAL RESOURCES AND ENERGY. 2000. "Information to tenderers" package for Oil and Natural Gas Licences to Search in New Brunswick. Request for Tender 16, 39 p.

NORANDA INC. 2000. Slag fuming at Belledune, New Brunswick: Phase I summary report and Phase II proposal. New Brunswick Department of Natural Resources and Energy, Minerals and Energy Division, Open File 2002-2, 140 p.

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ROBERT, É.C. 2000. Régénération spontanée de deux tourbières ombrotrophes anciennement exploitées. Ministère des Ressources naturelles et de l'Énergie du Nouveau-Brunswick, Division des ressources minières et de l'énergie, dossier public 2000-11, 83 p.

ST. PETER, C. 2000. Oil shales and oil and natural gas in New Brunswick: historical and current industry-related activities. New Brunswick Department of Natural Resources and Energy, Minerals and Energy Division, Information Circular 2000-5, 14 p.

ST. PETER, C. 2000. Les schistes bitumineux, le pétrole et le gaz naturel au Nouveau-Brunswick : Activités passées et courantes liées à l'industrie. Ministère des Ressources naturelles et de l'Énergie du Nouveau-Brunswick, Division des ressources minières et de l'énergie, circulaire d'information 2000-8, 16 p.

ST. PETER, C. 2000. Catalogue of well data for boreholes in the Maritimes Basin and Fundy Subbasin, New Brunswick. New Brunswick Department of Natural Resources and Energy, Minerals and Energy Division, Open File 2000-5, 235 p.

ST. PETER, C. 2000. Reflection seismic coverage of onshore and offshore New Brunswick, 1948–1999. New Brunswick Department of Natural Resources and Energy, Minerals and Energy Division, Open File 2000-7, 39 p.

SEAMAN, A.A. 2000. Till geochemistry of the New Brunswick part of the Woodstock (NTS 21 J/04) map area, Carleton County: site and geochemical data. New Brunswick Department of Natural Resources and Energy, Minerals and Energy Division, Open File 2000-3, 45 p.

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THIBAULT, J.J., SWANSON, L.A. and CHMURA, G.L. 2000. Coastal peatlands and salt marshes of New Brunswick, Canada. New Brunswick Department of Natural Resources and Energy, Minerals and Energy Division, Open File 2000-12, 38 p.

THOMAS, M.D., WALKER, J.A., KEATING, P., SHIVES, R., KISS, F., and GOODFELLOW, W.D. 2000. Geophysical atlas of massive sulphide signatures, Bathurst Mining Camp, New Brunswick. Geological Survey of Canada, Open File 3887, 105 p. / New Brunswick Department of Natural Resources and Energy, Minerals and Energy Division, Open File 2000-4, 105 p.

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VENUGOPAL, D.V. 2000. Characterization of clay from the Cassidy Lake silica deposit, southern New Brunswick. New Brunswick Department of Natural Resources and Energy, Minerals and Energy Division, Open File 99-13, 49 p.

WEBB, T.C. 2000. Precambrian limestones and dolomites of New Brunswick: geology and development potential. New Brunswick Department of Natural Resources and Energy, Minerals and Energy Division, Open File 97-15, 227 p.

WEBB, T.C. 2000. Mise en valeur des ressources en pierre du Nouveau-Brunswick : une approche pragmatique. Ministère des Ressources naturelles et de l'Énergie du Nouveau-Brunswick, Division des ressources minières et de l'énergie, circulaire d'information 2000-4, 7 p.

Plates (See List of Publications for details)

MAP NR-1 (2000 edition).
Bedrock geology of New Brunswick (colour). [scale: 1:500 000]

Carte NR-1 (édition de 2000)
Géologie du substrat rocheux du Nouveau-Brunswick. (en couleur). [échelle : 1/500 000]

Plate 2000-1 to 2000-4 (32 maps)
Multiparameter Airborne Geophysical Survey, Kedgwick area, New Brunswick (NTS 21 O/11–13, 21 O/16) — colour interval maps / Levé géophysique aérien à paramètres multiples, région de Kedgwick, Nouveau-Brunswick (SNRC 21 O/11 à 21 O/13, 21 O/16) — schéma des intervalles en couleur. **A**–magnetic first vertical derivative / dérivée première verticle du champ magnétique; **B**–apparent conductivity / conductivité apparente; **C**–air absorbed dose rate / taux d'absorption naturel dans l'air; **D**–potassium; **E**–uranium; **F**–thorium; **G**–thorium/potassium; **H**–magnetic anomaly (residual total field) / anomalie magnétiques (champ total résiduel). New Brunswick Department of Natural Resources and Energy and Geological Survey of Canada / Ministère des Ressources naturelles et de l'Énergie du Nouveau-Brunswick et la Commission géologique du Canada. [scale / échelle : 1:50 000]

Plate 2000-5 to 2000-15 (22 maps)
Multiparameter Airborne Geophysical Survey, Kedgwick area, New Brunswick (NTS 21 O/11–13, 21 O/16) — line contour maps / Levé géophysique aérien à paramètres multiples, région de Kedgwick, Nouveau-Brunswick (SNRC 21 O/11 à 21 O/13, 21 O/16) — cartes d'isolignes. **A**–aeromagnetic total field / aéromagnetique du champ total. **B**–conductors and apparent conductivity / conducteurs et conductivité apparente. New Brunswick Department of Natural Resources and Energy and Geological Survey of Canada / Ministère des Ressources naturelles et de l'Énergie du Nouveau-Brunswick et la Commission géologique du Canada. [scale / échelle : 1:20 000]

Plate 2000-17 (1 map)
Bedrock geology of the Long Reach area (parts of 21 G/08a, b, g and h), southern New Brunswick. S.C. Johnson. [scale: 1:20 000]

Plate 2000-18 (1 map)
Bedrock geology of the Loch Alva–Nerepis area (parts of 21 G/08c, d, e and f), southern New Brunswick S.C. Johnson. [scale: 1:20 000]

Plate 2000-19 (1 map)
Till geochemistry sample sites in the New Brunswick part of the Woodstock (NTS 21 J/04) map area. A.A. Seaman. [scale: 1:50 000]

Plate 2000-20 (6 maps)
Reflection seismic coverage of onshore and offshore New Brunswick, 1948–1999: **A**–21 B, 21 A; **B**–21 G; **C**–21 H; **D**–21 I; **E**–21 J; **F**–21 P. R.E. Phillips and C. St. Peter. [scale: 1:250 000]

Plate 2000-21 (4 maps)
National Geochemical Reconnaissance: stream sediment and water survey, northwestern New Brunswick (NTS 21 O/12): **A**–sample sites; **B**–Cu, Co, Ni, Cr; **C**–Au, As, Sb, Ba, W; **D**–Cu, Pb, Zn, Ag, Mo. A.G. Pronk, P.W.B. Friske. [scale: 1:50 000]

Plate 2000-22 (4 maps)
National Geochemical Reconnaissance: stream sediment and water survey, northwestern New Brunswick (NTS 21 O/13): **A**–sample sites; **B**–Cu, Co, Ni, Cr; **C**–Au, As, Sb, Ba, W; **D**–Cu, Pb, Zn, Ag, Mo. A.G. Pronk, P.W.B. Friske. [scale: 1:50 000]

Plate 2000-23 (1 map)
New mineral occurrence west of Evandale, Queens County, New Brunswick: South Hamilton Road Au, Ag, Zn, Cu, Pb, (URN 1412). M.J. McLeod. [scale: 1:50 000]

Plate 2000-24 (1 map)
Variations de la position du front dunaire le long de la flèche de Bouctouche, côte sud-est du Nouveau-Brunswick. / Variations in the position of the dune face along the Bouctouche Spit, southeast coast of New Brunswick. D. Bérubé, A. Robichaud, P. Evans, M. Chiasson. [scale / échelle : 1:10 000]

Plate 2000-25 (1 map)
Preliminary geology of the Popelogan Lake area (NTS 21 O/15a), Restigouche County, New Brunswick. R. Wilson. [scale: 1:10 000]

Plate 2000-26 (1 map)
Preliminary geology of the Lost Pine Lake area (NTS 21 O/15b), Restigouche County, New Brunswick. R. Wilson. [scale: 1:10 000]

Plate 2000-27 (1 map)
Physiography of New Brunswick. V.N. Rampton, R.C. Gauthier, J. Thibault. [scale: 1:500 000]

Plate 2000-28 (1 map)
Gold environments in New Brunswick. M.J. McLeod.

Plate 2000-29 (1 map)
Geology of Grand Manan Island (parts of 21 B/10 and 21 B/15), New Brunswick. L.R. Fyffe and R.H. Grant. [scale: 1:50 000]

Plate 2000-30 (1 map)
Geology of the Stewarton Complex, southern New Brunswick (parts of NTS 21 H/12 and 21 H/13, New Brunswick. D.V. Venugopal. [scale: 1:10 000]

Plate 2000-32 (1 map)
Geology of the Wickham area (NTS 21 G/09h), Queens and Kings counties, New Brunswick. M.J. McLeod. [scale: 1:20 000]

Plate 2000-33 (1 map)
Geology of the Gordon Brook area (NTS 21 O/10g), Restigouche County, New Brunswick. R. Wilson. [scale: 1:20 000]

Plate 2000-34 (1 map)
Geology of the Akroyd Brook area (NTS 21 O/10h), Restigouche County, New Brunswick. R. Wilson. [scale: 1:20 000]

Plate 2000-35 (1 map)
Geology of the South Oromocto Lake area (part of NTS 21 G/07), Charlotte County, New Brunswick. L.R. Fyffe [scale: 1:50 000]

Plate 2000-36 (1 map)
Bedrock geology of the Belleisle Bay–Long Reach area (parts of 21 G/09a and 21 H/12d). S.C. Johnson and M.J. McLeod. [scale: 1:20 000]

Conference Papers and Posters Presented by Division Staff

BÉRUBÉ, D. 2000. Visite guidée des côtes du Nouveau-Brunswick et l'élaboration d'un système de classification des plages: la méthode Leatherman doit-elle être adoptée ou rejetée? Paper presented at Les Conférences-Midis du CEN, Université Laval, Québec City, Québec, March 16–17.

BÉRUBÉ, D. 2000. Dix ans d'ensablement artificiel à la plage Parlee, sur la côte sud-est du Nouveau-Brunswick: le concept de la dérive littorale mis à l'épreuve, puis au banc des accusés. Paper presented at Les Conférences-Midis du CEN, Université Laval, Québec City, Québec, March 16–17.

BÉRUBÉ, D., ROBICHAUD, A. and EVANS, P. 2000. Recent foredune migration along the Bouctouche spit, southeast coast of New Brunswick. Poster presented at the Coastal Zone Canada Conference, Saint John, New Brunswick, Sept. 17–22.

BÉRUBÉ, D., WHALEN, P. and GODIN, J. 2000. Establishment, development and degradation of a spruce stand, Cocagne Island, southeast coast of New Brunswick. Poster presented at the Coastal Zone Canada Conference, Saint John, New Brunswick, Sept. 17–22.

CARROLL, B.M.W. (editor / rédactrice) 2000. Abstracts, 2000: 25th annual Review of Activities. New Brunswick Department of Natural Resources and Energy, Minerals and Energy Division, Information Circular 2000-6, 55 p. / Résumés, 2000 : 25e rétrospective annuelle des activités. Ministère des

Ressources naturelles et de l'Énergie du Nouveau-Brunswick, Division des ressources minières et de l'énergie, circulaire d'information 2000-3, 55 p. This volume contains the following abstracts:
S.M. Barr, C.E. White New 1:20 000-scale geological maps of the Pocologan–Saint John area (parts of NTS 21 G/1, 21 G/2, 21 G/8, 21 H/5, and 21 H/12), southern New Brunswick. / Nouvelle carte géologique à l'échelle de 1/20 000 du secteur de Pocologan/Saint-Jean (parties de SNRC 21 G/1, 21 G/2, 21 G/8, 21 H/5 et 21 H/12), Sud du Nouveau-Brunswick.
S.M.Barr, C.E. White, B.V. Miller, E.M. Grace, D.W.A. McMullin Revised interpretation of rocks, faults, and terranes in the Pocologan–New River area, southern New Brunswick / Interpretation révisée des roches, des failles et des terranes du secteur de Pocologan–New River, Sud du Nouveau-Brunswick.
D. Bérubé, Léa Olsen Geomorphological history of Grande Plaine, Miscou Island, northeast coast of New Brunswick: preliminary works. / Histoire géomorphologique de la «Grande Plaine», Île de Miscou, côte Nord-est du Nouveau-Brunswick : travaux préliminaires.
J.I. Carroll Bedrock geology of the Kedgwick and Menneval map areas (NTS 21 O/11, 21 O/14), northern New Brunswick. / Géologie du substrat rocheux des secteurs cartographiques de Kedgwick et de Menneval (SNRC 21 O/11, 21 O/14), Nord du Nouveau-Brunswick.
L.R. Fyffe, R.H. Grant Paleozoic geology of Grand Manan Island, New Brunswick. / Géologie paléozoïque de l'Île Grand Manan, Nouveau-Brunswick.
L.R. Fyffe, S.R. McCutcheon A new bedrock geology map of New Brunswick: a synopsis of twenty-five years of mapping. / Nouvelle carte géologique du substrat rocheux du Nouveau-Brunswick : sommaire de 25 années de cartographie.
L.R. Fyffe, J.F. Riva Graptolites from the Digdeguash Formation of southwestern New Brunswick. / Graptolites de la formation de Digdeguash du Sud-Ouest du Nouveau-Brunswick.
S.C. Johnson, R.K. Pickerill Bedrock geology and a new fossil locality in the Belleisle Bay area, southern New Brunswick. / Géologie du substrat rocheux et nouvel emplacement de fossiles dans le secteur de la baie de Belleisle, Sud du Nouveau-Brunswick.
F. Kiss Airborne electromagnetic, magnetic, gamma-ray spectrometer survey in the Kedgwick area, northwestern New Brunswick. / Levé spectrométrique gamma, magnétique et électromagnétique dans le secteur de Kedgwick, Nord-Ouest du Nouveau-Brunswick.
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J.P. Langton A new geological mapping tool: data entry and retrieval using a hand-held GPS and CARIS software. / Nouvel outil de cartographie géologique : introduction et extraction de données à l'aide d'un progiciel pour CARIS et d'un récepteur GPS portatif.
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CHAPTER 2.
MINERAL EXPLORATION IN NEW BRUNSWICK

METALLIC MINERALS

Northern New Brunswick

The annual telephone poll, taken in October, indicates that exploration expenditures in the northern half of the Province for 2000 are approximately $8 200 000, up more than a million dollars from last year. For all of New Brunswick, the preliminary figure for 1999 expenditures is $8 500 000 and the forecast expenditure for 2000 is approximately $8 300 000. As ususal, most of the expenditure for base metals was focused on the Bathurst Mining Camp. Since October of 1999, the number of new claims recorded in northern New Brunswick was 1769 and the number of claims in effect was 15 385. Both of these numbers are up relative to last year's figures of 1425 and 14 884, respectively.

The **major companies** that were active in 2000 include Hudson Bay Exploration and Development Co. Limited and Noranda Inc. CanZinco Ltd., Falconbridge Limited, Phelps Dodge Corporation of Canada Limited and Teck Exploration Ltd. held land positions but did not do any work.

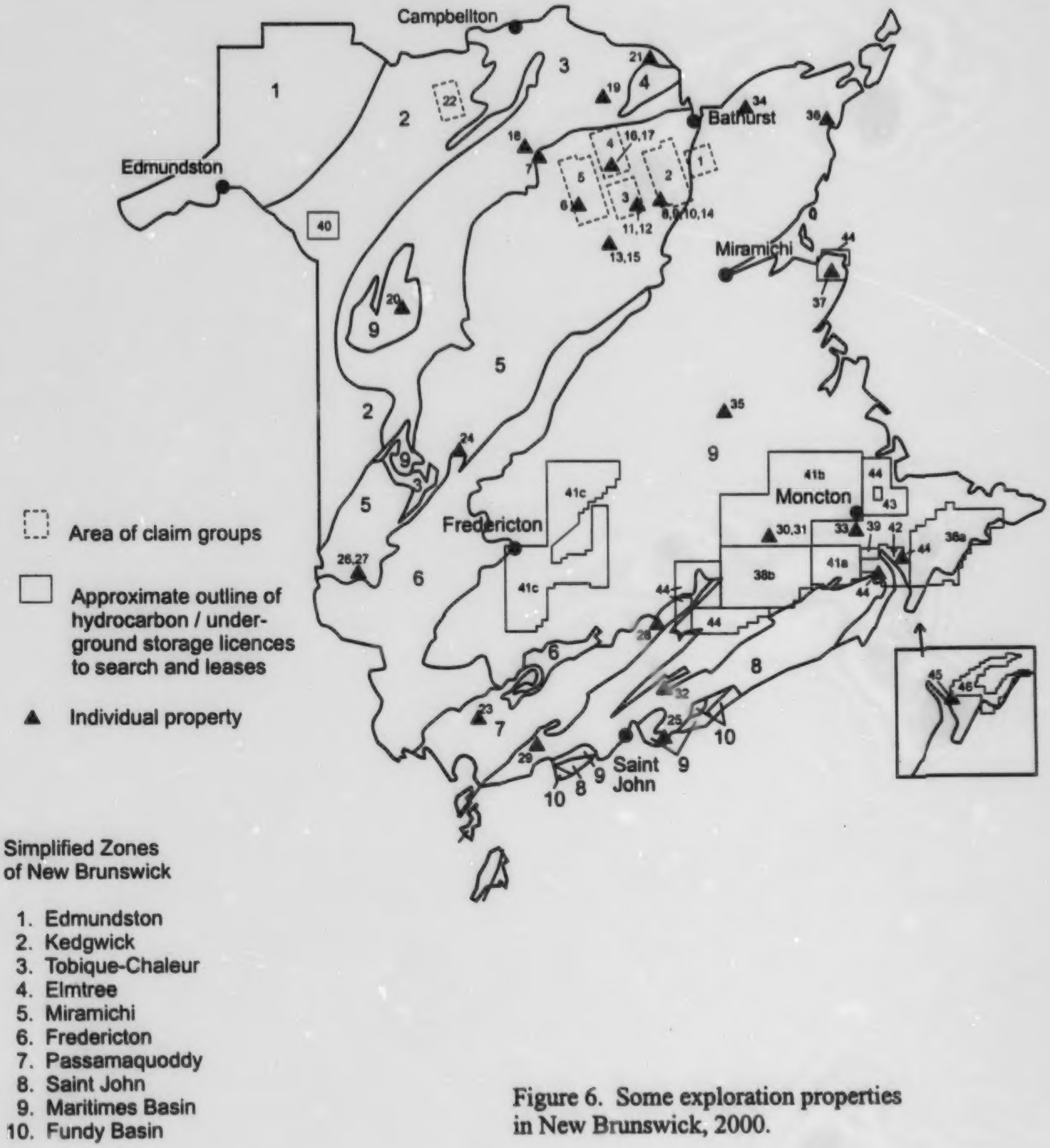
The **junior companies** that were active include Eastmain Resources Inc., Elmtree Resources Ltd., Fancamp Resources Ltd., Heron Mines Limited, Major General Resources Limited, Northeast Exploration Services Limited, Omni Mines Ltd., PGE Resource Corporation and Slam Exploration Ltd., which collectively spent approximately $800 000. All but three of these companies, Elmtree Resources Ltd., Northeast Exploration Services Limited and PGE Resource Corporation received funding under the New Brunswick Exploration Assistance Program for junior mining firms. Other juniors, such as Black Bull Resources (B.C.) Ltd., Chapleau Resources Limited, Connecticut Development Corporation, Hunter Brook Holdings Ltd. (formerly Key Anacon Mines Limited), Freewest Resources Canada Inc., Kelmet Resources Ltd., Marshall Minerals Corp., Mountain Lake Resources Inc. and Roycefield Resources Ltd. held ground but did not do any work during the year.

Bathurst Mining Camp: Major Companies Noranda Inc. accounts for approximately $7 000 000 of the total exploration expenditure in northern New Brunswick. The company spent all of it within the Bathurst Mining Camp. Approximately, $2 000 000 of this total was spent on a three-dimensional seismic survey in the Brunswick belt. From east to west, Noranda's land holdings are concentrated in five belts: Key Anacon–Lawson Brook belt, Brunswick–Portage River belt, Heath Steele–Mountain Brook belt, Camel Back–Wedge belt and Upsalquitch–Halfmile Lakes belt (Figure 6: 1–5). Notably, Noranda staked 316 new claims this year in the Bathurst Mining Camp; most are in the Brunswick–Portage River belt.

Most of Noranda's work was focused on the Brunswick–Portage River and Upsalquitch–Halfmile Lakes belts (Figure 6: 2, 5). Fifteen holes totalling approximately 14 000 m were drilled on the No. 12 Crown Grant to test the Brunswick horizon along strike from the mine and to depths of about 1 km. However, no significant sulphide zones have been found to date. Another 18 holes totalling approximately 16 600 m were drilled elsewhere in the Brunswick–Portage River belt, mostly on the Gilmour South

Legend

1. Claims, Key Anacon–Lawson Brook belt (Noranda Inc.; Noranda Mining and Exploration Inc.)
2. Claims, Brunswick–Portage River belt (Noranda Inc.; Noranda Mining and Exploration Inc.)
3. Claims, Heath Steele–Mountain Brook belt (Noranda Inc.; Noranda Mining and Exploration Inc.)
4. Claims, Camel Back–Wedge belt (Noranda Inc.; Noranda Mining and Exploration Inc.)
5. Claims, Upsalquitch–Half Mile Lakes belt (Noranda Inc.; Noranda Mining and Exploration Inc.)
6. Claims, Halfmile Lakes area (Noranda Inc.)
7. Claims, Portage Lakes area (Northeast Exploration Services Limited)
8. Claims, Railroad (Eastmain Resources Inc.)
9. Claims, Captain properties (Eastmain Resources Inc.; Stratabound Minerals Corp.)
10. Claims, Sprig Brook (Eastmain Resources Inc.)
11. Claims, Roche Long Lac (Eastmain Resources Inc.)
12. Claims, Island Lake properties (Eastmain Resources Inc.)
13. Claims, Bills Lake (PGE Resource Corporation)
14. Claims, Nepisiguit Brook Property (Major General Resources Limited)
15. Claims, Clearwater Lake (Slam Exploration Ltd.)
16. Claims, Wedge (Merton Stewart)
17. Claims, Canoe Landing Lake area (Forest Gate Resources Inc.)
18. Claims, Malachite (Log House Construction Ltd.)
19. Claims, Clarinda (Lorenzo Noel)
20. Claims, Lewis Brook (Slam Exploration Ltd.)
21. Claims, Turgeon Deposit (Heron Mines Ltd.)
22. Claims, Simpsons Gulch, Royal Vault, Boland Brook, Indian Brook, Burntland Brook, Ritchie Brook (A. Wayne Lockhart)
23. Claims, Clarence Stream (Freewest Resources Canada Inc.)
24. Claims, Sisson Brook (Champlain Financial Group Ltd.)
25. Claims, Armstrong Brook (Pro-Max Resources Inc.)
26. Claims, Springfield (Patrick Marr)
27. Claims, Deadwater Brook (Sheila Watters); Dead Creek (Mark Connell)
28. Claims, Albright Brook (PGE Resource Corporation)
29. Claims, New River (PGE Resource Corporation)
30. Claims, Hicksville (Graymont (NB) Inc.)
31. Claims, Springhill (Lafarge Canada Inc.)
32. Claims, Bonney Road (J.D. Irving Limited)
33. Claims, Lower Coverdale (Noranda Inc.)
34. Peat exploration licence (Compagnie de Tourbe Fafard ltée)
35. Peat exploration licence (Le Groupe Qualité Lamèque ltée)
36. Peat lease (Jiffy Products (N.B.) Ltd.)
37. Peat exploration licence (Premier Horticulture (Premier Tech ltée))
38. Oil and natural gas licences to search (Corridor Resources Inc.)
39. Oil and natural gas lease (Irving Oil Limited)
40. Oil and natural gas licence to search (Jean Mariadassou)
41. Oil and natural gas licence to search (Columbia Natural Resources Canada, Ltd./ MariCo Oil and Gas Corporation)
42. Oil and natural gas licences to search and leases (J.A. Seglund, Inc.)
43. Oil and natural gas lease (RHT Enterprises Ltd.)
44. Bituminous shale development permits (A.A. (NB) Inc.)
45. Underground storage exploration licence (St. Clair Pipelines (1996) Ltd.)
46. Underground storage exploration licences (Intragaz)
44. Oil and natural gas exploration licences pending


Campbellton
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41b
41c
41a
38a
38b
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46
Area of claim groups
Approximate outline of hydrocarbon / underground storage licences to search and leases
Individual property

Simplified Zones
of New Brunswick

1. Edmundston
2. Kedgwick
3. Tobique-Chaleur
4. Elmtree
5. Miramichi
6. Fredericton
7. Passamaquoddy
8. Saint John
9. Maritimes Basin
10. Fundy Basin

Figure 6. Some exploration properties in New Brunswick, 2000.

property, which is about 10 km south of Brunswick No. 6. Some ore-grade intercepts of significant thickness have been encountered in this area over the past two years, but continuity of the good-grade material has not been established to date. One deep hole was drilled early in the year to test a two-dimensional seismic target several hundred metres down plunge from the No. 6 open pit. The hole had a two-fold purpose: first, to confirm that the target represents the Brunswick horizon and, second, to gather rock-property data to help with the interpretation of the three-dimensional seismic survey that was shot in October.

The three-dimensional seismic survey covers a 42 km^2 area that is roughly 5 km wide by 8 km long (east–west and north–south, respectively) and is entirely north of the Nepisiguit River. It encompasses the Brunswick No. 6 deposit but not the No. 12 mine. Line cutting, blast-hole drilling and geophone-site surveying were completed in the summer. Western Geophysics began shooting the survey in September and completed the job in October.

In the latter part of 1999, a new discovery was made by prospecting near Mount Fronsac in the Upsalquitch–Halfmile Lakes belt (Figure 6: 5). To date, 41 holes totalling approximately 17 000 m have been drilled to test a large sulphide-bearing system that is hosted by rocks of the Flat Landing Brook Formation. Drilling continues but to date it has not been possible to demonstrate continuity between the higher grade sections.

No further drilling was undertaken at the Halfmile Lake Deep Zone (Figure 6: 6) that was discovered in 1999 as a result of following up a three-dimensional seismic target. Thick intervals of massive sulphide were encountered in several drill holes but the grades were not sufficient to warrant further drilling at that depth. However, three holes totalling 2300 m were drilled at Halfmile Lake North.

Hudson Bay Exploration and Development Co. Limited is a new player in the Bathurst Mining Camp and began early in the year by flying its in-house airborne geophysical system over parts of the camp. Because processing of this data took longer than expected, the company did not acquire ground until late summer. The company has staked about 200 claims in the western part of the camp and optioned additional claims, including some from Northeast Exploration Services Limited. One hole was drilled in the fall of 2000 to test an airborne target south of Portage Lakes (Figure 6: 7). The company expects to do more work in 2001.

Bathurst Mining Camp: Juniors Eastmain Resources Inc. has the second largest land position in the Bathurst Mining Camp after Noranda, since March of 2000 when it entered into an option agreement with Stratabound Minerals Corp. Because the company is seeking a joint-venture partner, it provided field tours early in the summer to geologists from a number of major companies. Negotiations with one or more of these companies are still underway but Eastmain is optimistic that a deal will be concluded in the near future and a major drilling program will commence (approximately 7500 m).

During the summer, the company focused its exploration effort on one property, referred to as Railroad (Figure 6: 8). Most of this property has now been mapped geologically and covered by magnetic and induced polarization surveys. This work has been supplemented by whole-rock geochemical data (XRF analyses of existing samples from drill cores and surface exposures). Eight priority areas have been identified as follows: Captain West (Figure 6: 9), Railroad and Extension, Railroad Iron Formation (RIF), Railroad Footwall Zone (Figure 6: 8), Sprig Brook (Figure 6: 10), Roche Long Lac (Figure 6: 11), Island Lake and Island Lake East (Figure 6: 12).

A new alteration index (modified after Franklin) that is referred to as the modified chlorite index has been applied to the lithogeochemical data set, comprising in excess of 2000 analyses, including new and previously reported data. This index can be formulated as follows:

$$(FeO+MgO+K_2O) / ((FeO+MgO+K_2O) + (CaO+Na_2O) * 2)$$

There is a good spatial correlation between a high index value and degree of alteration of the footwall rocks on this property. A very large area of altered rocks of the Nepisiguit Falls Formation occurs along strike of the Railroad Footwall Zone (Figure 6: 8). A second 2 km long alteration zone occurs southwest of the Captain deposit and a third is northeast of the CNE deposit (Figure 6: 9). In each of these three areas no previous drilling has been reported.

PGE Resource Corporation drilled two holes, totalling about 800 m, in early summer on its Bills Lake property (Figure 6: 13), north of Chester. The company is currently in the process of drilling two more holes and is encouraged by the results so far.

Major General Resources Limited received a small grant through the New Brunswick Exploration Assistance Program to carry out further induced polarization surveys on its Nepisiguit property (Figure 6: 14). Drill targets have been identified but drilling will not commence until 2001.

Slam Exploration Ltd. became a listed company on the Alberta Exchange in the latter part of 1999 and initially focused its exploration on gold properties outside of the Bathurst Mining Camp. However, the company is now placing more emphasis on base metals and as a result has recently begun work on its Clearwater property (Figure 6: 15) near Chester and expects to be working the Wedge property (Figure 6: 16) as well.

Forest Gate Resources Inc. is a new, as yet unlisted, junior company that has recently acquired a modest land position in the Bathurst Mining Camp, which includes the Canoe Landing Lake deposit (Figure 6: 17), formerly held by E.A. Brooks. In 1999, Mr. Brooks proposed a new exploration model for this deposit based upon a re-evaluation of existing data, which the company is now pursuing. One of the principals in this company, P.K. Gummer, was an active player in the camp in the mid-1970s when Sabina Industries Limited found the Flat Landing Brook deposit. The company is currently staking more claims in the area.

Outside the Bathurst Mining Camp: Phelps Dodge Corporation of Canada Ltd. staked two blocks, totalling about 120 claims, in the southern part of the Upsalquitch Forks map area (NTS 21 O/10). Early in the year, the company entered preliminary negotiations with Rufus Smith of Log House Construction Ltd. for his Malachite property (Figure 6: 18), west of Portage Lakes, which hosts a porphyry system. However, the company has not carried out work on its claims in recent months or followed up on the negotiations.

Slam Exploration Ltd. drilled 15 holes, totalling 1926 m, on the Clarinda gold property (Figure 6: 19) near Lower Tetagouche Lake, which is under option from Lorenzo Noel. The best intersections reported were 5.6 m of 1.79 g/t Au (including 1.5 m of 4.29 g/t Au) in hole CL0003 and 2.0 m of 3.10 g/t Au (including 0.5 m of 5.26 g/t Au) in hole CL0015. The company does not plan to renew its option agreement but it has staked an additional 500 claims in the area.

Slam also carried out a trenching program in an attempt to find the source of geochemical anomalies on its Lewis Brook Pb–Zn property (Figure 6: 20), which is near the Sewell Brook and Mount Costigan deposits. The Lewis Brook and Clarinda properties are in the Tobique–Chaleur metallogenic zone. The company expects to drill test targets in 2001.

Early in 2000, Fancamp Resources Ltd. and joint-venture partner Heron Mines Limited drilled five holes, totalling about 1500 m, on the Turgeon Cu–Zn property (Figure 6: 21) near Belledune in order to test a new geological interpretation and an induced polarization target. The best hole (F-1) intersected 19.3 m (approximately 16 m true thickness) of massive sulphides grading 2.31% Cu, 0.49% Zn and 1.6 g/t Ag, including a 5 m interval grading 3.79% Cu.

Subsequently, 219 claims have been staked adjacent to the Turgeon property and a consortium of companies planned to fly a high-resolution airborne survey over the entire area in the latter part of 2000. The survey will be done from a helicopter platform.

Wayne Lockhart added about 250 claims to his large nickel property (Figure 6: 22) in the northeastern part of the Kedgwick map area (NTS 21 O/11). The bedrock source(s) of the stream-sediment nickel anomalies has (have) still not been verified. Therefore, the company has been testing different sample media and geochemical techniques in order to obtain data from plateau areas between the deeply incised stream valleys. The company also plans to do a couple of gravity profiles to determine if the large total-field magnetic anomaly is caused by a mafic intrusion.

Southern New Brunswick

Exploration for precious metals and base-metal sulphides continued in southern New Brunswick during 2000. The most vigorous activities were related to the expansion of resources on known gold properties and the search for new gold occurrences in the southwestern part of the province. Recent work in this area has demonstrated that there is excellent potential for substantial gold deposits associated with Sn–W-bearing granites. This environment is strikingly similar to that found in the gold districts developing in the Tintina belt in Alaska and the Yukon.

In southwestern New Brunswick, Freewest Resources Canada Inc. continued a trenching and stripping program on its Clarence Stream property (Figure 6: 23), which occurs in a skarn/contact metasomatic environment along the northwestern flank of the Saint George Batholith. Quartz veins up to 3 m wide and associated alteration zones occur within structural traps that have been traced more than 2 km along strike. Mineralized veins and alteration zones commonly yield spectacular gold grades and, in general, may indicate the presence of a high-grade, medium-tonnage deposit like the Pogo deposit in the Tintina belt.

A group of New Brunswick prospectors and geologists has been very active conducting geochemical surveys and prospecting on numerous properties in the search for gold associated with granites in the same area. The group includes Pro-Max Resources Inc. (Emilio Doiron), Southfield Resources Ltd. (William Gardiner), Peter Fenety, Raymond Thorn and David Stevens. Many of their properties have known, granite-related, gold potential. As well, these prospectors have found several new occurrences of gold-bearing rock similar to that at Clarence Stream, which further enhances the potential for significant deposits of this type in the region.

Several other junior mining companies and geoscientists are becoming active near Clarence Stream as well. These include Union Gold Inc., Murgor Resources Inc., PGE Resource Corporation, Rubicon Minerals Corporation, Fancamp Resources Ltd., Golden Hope Mines Limited and Avard Hudgins. Most have conducted geochemical surveys and have prospected on many of their claim groups. In general, results to date indicate the presence of numerous geochemical anomalies that will be followed-up in the near future by detailed sampling and trenching programs.

There is also demonstrated potential for granite-related gold associated with the Pokiok Batholith in the south-central part of the province. This is exemplified in gold-bearing skarns exposed at lower levels in the Lake George antimony mine. Although there is no active exploration at Lake George, extensive work is underway on the Sisson Brook W–Mo–polymetallic deposit (Figure 6: 24) along strike. This property, held by the Champlain Financial Group Ltd., was recently optioned to Pan American Resources Inc. and an intensive exploration program is currently being conducted.

In the southeastern part of the province, gold exploration was mostly limited to the northeasterly trending belt along strike from the Cape Spencer mine, south of Saint John. Pro-Max Resources Inc. continued to delineate zones on its Armstrong Brook property (Figure 6: 25) where voluminous, high-grade, visible-gold-bearing quartz vein systems occur within this gold-rich thrust and fold belt. Continuity of well-defined mineralized structures hosting these vein systems has been demonstrated over a distance of more than 2 km on the property.

Exploration for base-metal sulphides focused on two main areas in south-central New Brunswick, one north and one south of Fredericton. To the north, Patrick Marr initiated ground geophysical surveys and follow-up sampling programs to investigate massive sulphide horizons in Lower Ordovician rocks near Eel River (Figure 6: 26). He has been successful in tracing these stratiform horizons for several kilometres across the property. South of the Marr claims, Sheila Watters and Mark Connell conducted a pionjar sampling survey in tills on their claims in the vicinity of Deadwater Brook (Figure 6: 27) in order to pinpoint the source of a high-grade, auriferous, massive sulphide boulder found previously. Detailed till mapping and sampling established that the boulder is locally derived. South of Frederiction, PGE Resource Corporation continued trenching and/or prospecting on its Albright Brook and New River properties (Figure 6: 28, 29) in search of volcanogenic massive sulphide deposits.

Technical Progress Reports

The following Technical Progress Reports were received in 2000:

Report No.	Company	Property	NTS	Release Date
PR10-117	Goldcorp Inc.	Hicksville	21 I/03W	06/15/2000
PR10-118	Freewest Resources Canada Inc.	Nine Mile Brook	21 O/08E	01/28/2002
PR10-119	Stratabound Minerals Corp.	CNE South	21 P/05W	02/04/2002
PR10-120	Kelmet Resources Ltd.	Brunswick Extension	21 P/12W	04/07/2002
PR10-121	Graham, D.C.	Headway West	21 P/05W	11/24/2002
PR10-122	NovaGold Resources Inc.	Sewell Brook	21 O/03E	05/10/2001
PR10-123	Noranda Inc.	Coles Brook	21 O/08E	11/28/2002
PR10-124	Moosehead Breweries Ltd.	Ketepec	21 G/08E	04/20/2003
PR10-125	Noranda Inc.	McKenzie Gulch	21 O/10W	2000

Report No.	Company	Property	NTS	Release Date
PR15-033	Noranda Inc.	Loop Road	21 P/12W	04/04/2002
PR15-034	Noranda Inc.	Nepisiguit Brook	21 P/05W	04/04/2002

Mineral Exploration Reports of Work

During 2000, 91 reports of work were received by the Recorder in accordance with the *Mining Act*, Chapter M-14.1, S.N.B. 1985. These reports are summarized in tabular form on the following pages and their locations are shown on Figure 7. The name of the company or individual listed for each report of work is that of the holder of the mineral rights. Reports are arranged in the following order: (1) by the geological belt in which the claims are located, (2) alphabetically by company or individual, and (3) alphabetically by property name.

Claim Group	Geoscan No.	No. of Claims	NTS	Release Date	Description of Work
KEDGWICK					
4. Brooks, E.A.					
a. Chisholm Brook	475366	1	21 O/11W	Nov. 15, 2002	Prospecting; geologic mapping; collection and analysis of rock samples.
10. Fahey, J.					
St. Leonard	475326	20	21 O/04W	Aug. 9, 2002	Sample analysis.
32. Ouellet, D.					
a. Chisholm Brook	475332	1	21 O/11E	July 12, 2002	Prospecting; collection and analysis of a lithogeochemical sample.
b. Chisholm Brook	475333	1	21 O/11E	July 12, 2002	Prospecting; collection and analysis of a lithogeochemical sample.
c. Chisholm Brook	475334	1	21 O/11E	July 12, 2002	Prospecting; collection and analysis of a lithogeochemical sample.
d. Chisholm Brook	475335	1	21 O/11E	July 12, 2002	Prospecting; collection and analysis of a lithogeochemical sample.
e. Chisholm Brook	475336	1	21 O/11E	July 12, 2002	Prospecting; collection and analysis of a lithogeochemical sample.
f. Chisholm Brook	475337	1	21 O/11E	July 12, 2002	Prospecting; collection and analysis of a lithogeochemical sample.
g. Chisholm Brook	475338	1	21 O/11E	July 12, 2002	Prospecting; collection and analysis of a lithogeochemical sample.
h. Chisholm Brook	475339	1	21 O/11E	July 12, 2002	Prospecting; collection and analysis of a lithogeochemical sample.

Claim Group	Geoscan No.	No. of Claims	NTS	Release Date	Description of Work
TOBIQUE–CHALEUR					
1. **Bathurst Exploration Ltd.**					
a. Arleau Brook	475361	39	21 O/09E	Nov. 10, 2002	Grid establishment; prospecting; geologic mapping; collection and analysis of rock and soil samples.
b. Lake	475301	6	21 O/09E	Mar. 15, 2002	Prospecting; magnetometer and very low frequency electromagnetic surveys.
c. Shelter	475300	6	21 O/09E	Mar. 15, 2002	Prospecting; magnetometer and very low frequency electromagnetic surveys.
3. **Black, J.**					
Gold Tetagouche	475354	5	21 O/09W	Oct. 18, 2002	Prospecting; collection and analysis of soil samples.
18. **Higgins, A.**					
Carlisle	475356	8	21 J/06W	Oct. 30, 2002	Grid establishment; geologic mapping, collection and analysis of grab samples.
28. **Noel, L.**					
Clarinda	475374	42	21 O/09E	Nov. 24, 2002	Grid establishment; trenching; Max-Min survey; collection and analysis of rock, soil, silt and core samples; diamond drilling.
34. **Phelps Dodge Corp. of Canada Ltd.**					
a. Ferguson Brook	475381	60	21 O/10E	Dec. 22, 2002	Geological mapping; collection and analysis of silt and heavy-mineral-concentrate samples.
b. Ramsey Brook	475382	23	21 O/10E	Dec. 22, 2002	Geological mapping; collection and analysis of silt and heavy-mineral-concentrate samples.
ELMTREE					
17. **Heron Mines Ltd.**					
Turgeon deposit	475309	64	21 P/13W	Apr. 19, 2002	Diamond drilling; collection and analysis of assay samples.
38. **Smith, K.**					
a. Copper Stake	475346	10	21 P/13W	Sept. 6, 2002	Prospecting; Beep-Mat survey; collection and analysis of assay samples.
b. Tower Hill	475341	10	21 P/13W	Aug. 16, 2002	Prospecting; Beep-Mat survey; collection and analysis of assay samples.
c. Tower Hill	475345	4	21 P/13W	Sept. 6, 2002	Prospecting; Beep-Mat survey; collection and analysis of assay samples.

Claim Group	Geoscan No.	No. of Claims	NTS	Release Date	Description of Work
MIRAMICHI					
4. **Brooks, E.A.**					
b. Canoe Landing Lake	475340	11	21 O/08E	Aug. 21, 2002	Prospecting; compilation; and drill core logging.
6. **CanZinco Ltd.**					
a. Orvan Brook	475324	17	21 O/09E	July 20, 2002	Grid establishment; geologic mapping,
b. Rocky Turn	475320	6	21 O/09E	July 7, 2002	Compilation; ground reconnaissance.
c. Roller	475319	50	21 O/09E	July 17, 2002	Grid establishment; very low frequency and magnetometer surveys.
7. **Carroll, W.**					
a. CAM	475362	4	21 O/07E	Nov. 10, 2002	Prospecting; collection and analysis of rock samples.
b. WWK	475369	13	21 O/07E	Nov. 17, 2002	Prospecting; collection and analysis of rock and soil samples.
c. WWK+1	475372	6	21 O/07E	Nov. 23, 2002	Prospecting; collection and analysis of silt samples.
8. **Champlain Financial Group Ltd.**					
Sisson Brook	475350	11	21 J/06E	Sept. 26,2002	Compilation and digitization of previous work; prospecting; collection and analysis of till samples.

Figure 7

Mineral Exploration Reports of Work

1. Bathurst Exploration Ltd.
2. Bernier, P.
3. Black, J.
4. Brooks, E.A.
5. Canoga Resources Ltd.
6. CanZinco Ltd.
7. Carroll, W.
8. Champlain Financial Group Ltd.
9. Eastmain Resources Inc.
10. Fahey, J.
11. Fenety, Peter
12. Freewest Resources Canada Inc.
13. Graham, D.
14. Graham, I.
15. Hachey, W.
16. Havelock Lime Ltd.
17. Heron Mines Ltd.
18. A. Higgins
19. Hunter Brook Holdings Ltd.
20. J.D. Irving Limited
21. Johnston, A.
22. Lafarge Canada Inc.
23. Log House Construction Ltd.
24. Major General Resources Ltd.
25. Marshall Minerals Corp.
26. McMinn Pit Ltd.
27. Nicon Holdings Ltd.
28. Noel, L.
29. Noranda Inc.
30. Noranda Mining and Exploration Inc.
31. Northeast Exploration Services Limited
32. Ouellet, D.
33. PGE Resource Corp.
34. Phelps Dodge Corp. of Canada Ltd.
35. Pro-Max Resources Inc.
36. Robichaud, F.
37. Ross, F.
38. Smith, K.
39. Taylor, B.

Simplified Zones of New Brunswick

1. Edmundston
2. Kedgwick
3. Tobique–Chaleur
4. Elmtree
5. Miramichi
6. Fredericton
7. Passamaquoddy
8. Saint John
9. Maritimes Basin
10. Fundy Basin

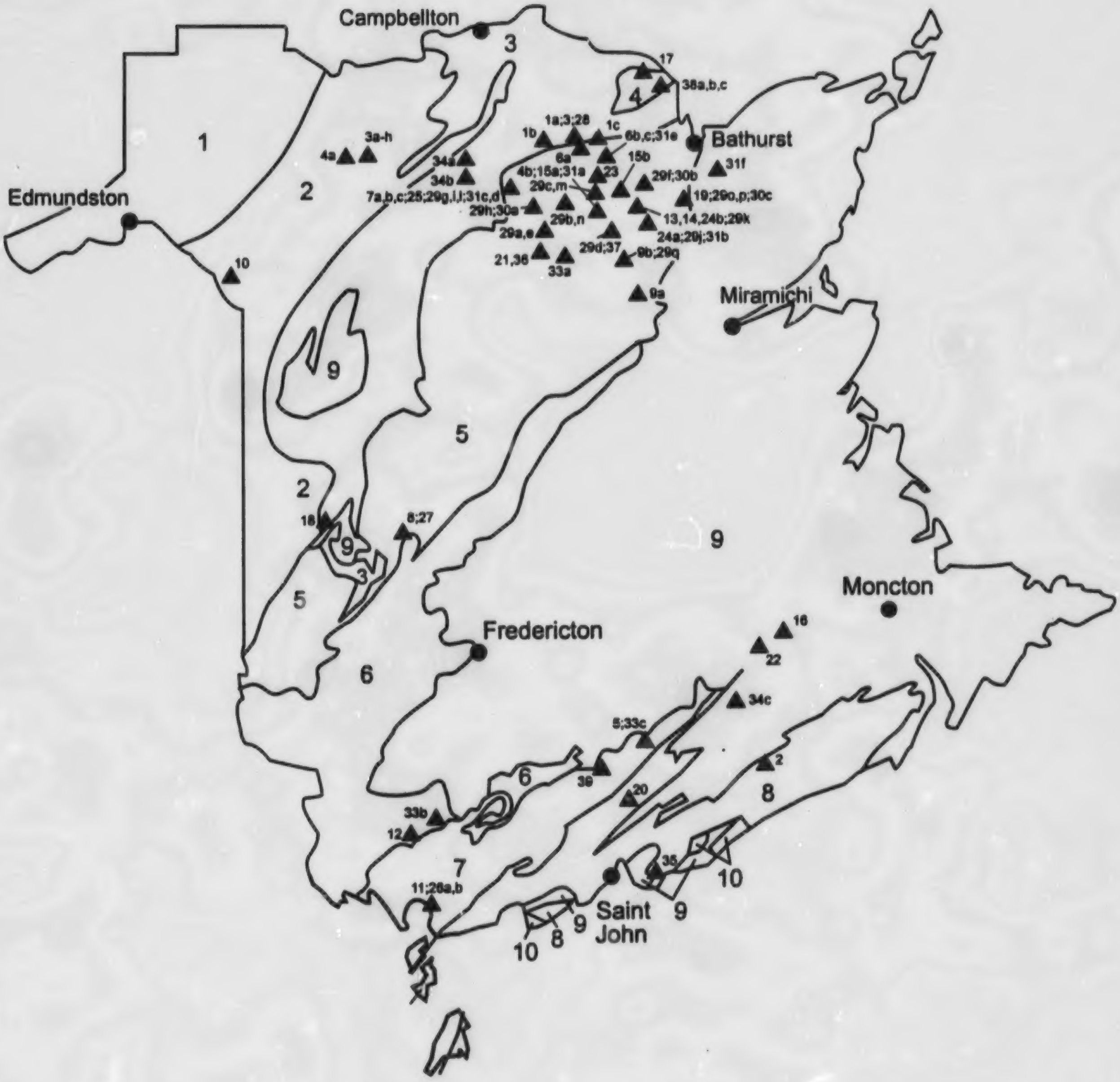
Campbellton
3
17
4
38a,b,c
Bathurst
1
3a-h
4a
2
Edmundston
34a
34b
1a;3;28
1b
1c
6b,c;31e
6a
15b
4b;15a;31a
23
29c,m
29f;30b
31f
7a,b,c;25;29g,i,l;31c,d
29h;30a
29b,n
19;29o,p;30c
13,14,24b;29k
29a,e
24a;29j;31b
29d;37
9b;29q
21,36
33a
10
9a
Miramichi
9
5
2
18
8;27
9
3
9
5
Moncton
16
Fredericton
22
6
34c
5;33c
2
39
6
20
8
33b
12
35
7
10
11;26a,b
9
Saint
John
9
8
10

Figure 7. Location of properties for which mineral exploration reports of work were filed in 2000.

Claim Group	Geoscan No.	No. of Claims	NTS	Release Date	Description of Work
9. **Eastmain Resources Inc.**					
a. Little River	475312	12	21 P/04W	May 16, 2002	Compilation of assessment data.
b. Sandburn West	475313	31	21 P/04W	June 6, 2002	Grid establishment; Max-Min and magnetometer surveys; diamond drilling
13. **Graham, D.**					
Headway North	475353	10	21 P/05W	Oct. 25, 2002	Grid establishment; induced polarization surveys.
14. **Graham, I.**					
Headway	475352	15	21 P/05W	Not confid.	Grid establishment; induced polarization survey.
15. **Hachey, W.**					
a. Josephine	475321	7	21 O/08E	July 10, 2002	Collection and analysis of till samples; diamond drilling.
b. Napoleon	475316	18	21 O/08E	June 23, 2002	Grid establishment; collection and analysis of till samples; diamond drilling.
19. **Hunter Brook Holdings Ltd.**					
Key Anacon Mine	475365	83	21 P/05E	Nov. 15, 2002	Collection and analysis of soil samples; reclamation work.
21. **Johnston, A.**					
Moose Brook	475378	4	21 O/01W	Dec. 8, 2002	Prospecting; trenching; collection and analysis of rock samples.
23. **Log House Construction Ltd.**					
South Branch	475348	4	21 O/09E	Sept. 6, 2002	Grid establishment; prospecting; very low frequency survey; collection and analysis of soil and rock samples.
24. **Major General Resources Ltd.**					
a. Nepisiguit Brook	475311	176	21 P/05W	Apr. 28, 2002	Grid establishment; magnetometer and induced polarization surveys.
b. Nepisiguit Brook	475375	194	21 P/05W	Nov. 29, 2002	Grid establishment; IP surveys.
25. **Marshall Minerals Corp.**					
Restigouche	475367	13	21 O/07E	Nov. 15, 2002	Grid establishment; gravity survey.
27. **Nicon Holdings Ltd.**					
Sisson Brook	475315	11	21 J/06E	Oct 13, 2001	Compilation; metal detector surveys, very low frequency orientation survey.
29. **Noranda Inc.**					
a. Acadians	475325	134	21 O/08W	Aug. 3, 2002	Diamond drilling; down-hole geophysics.

Claim Group	Geoscan No.	No. of Claims	NTS	Release Date	Description of Work
b. Acadians, Halfmile Lake South, Halfmile Lake North, Halfmile Lake Central, Little Bald Mtn., Moody Brook	475317	534	21 O/08E, 21 O/08W	June 29, 2002	Diamond drilling; collection and analysis of lithogeochemical samples; seismic surveys.
c. Eagle	475330	12	21 O/08E	Aug. 9, 2002	Grid establishment; horizontal-loop electromagnetic, very low frequency and magnetometer surveys.
d. Loop Road	475305	135	21 P/12W	Apr. 4, 2002	Diamond drilling; collection and analysis of lithogeochemical samples.
e. Heath Steele	475343	---	21 O/08E	-----	Grid establishment; trenching; geological mapping; ground geophysical surveys; soil, Pionjar, and till sampling; lithogeochemical analysis; drilling.
f. Little Bald Mountain	475380	275	21 O/08W	Dec. 22, 2002	Grid establishment; diamond drilling; collection and analysis of lithogeochemical samples.
g. Mount Chamberlain South	475364	13	21 O/08W	Nov. 14, 2002	Grid establishment; very low frequency, horizontal-loop electromagnetic and magnetometer surveys.
h. Mount Perley, Portage Brook North, Mount Chamberlain South, Devils Elbow, Mount Fronsac, Fly Tent Brook, Fly Tent Brook East, Camel Back East	475358	709	21 O/08W	Nov. 1, 2002	Airborne geophysics.
i. Mount Perley South	475373	32	21 O/08W	Nov. 24, 2002	Grid establishment; magnetometer, very low frequency and horizontal-loop electromagnetic surveys; diamond drilling.
j. Nepisiguit Brook	475302	65	21 P/05W	Apr. 3, 2002	Diamond drilling; trenching; collection and analysis of lithogeochemical and assay samples.
k. Pabineau South	475303	181	21 P/05W	Apr. 4, 2002	Diamond drilling; collection and analysis of lithogeochemical samples.
l. Portage Brook North	475359	86	21 O/08W	Nov. 1, 2002	Grid establishment; very low frequency, horizontal-loop electromagnetic, and magnetometer surveys.
m. Raven	475329	12	21 O/08E	Aug. 9, 2002	Grid establishment; horizontal-loop electromagnetic, very low frequency and magnetometer surveys.

Claim Group	Geoscan No.	No. of Claims	NTS	Release Date	Description of Work
n. Robin	475331	8	21 O/08E	Aug. 9, 2002	Grid establishment; horizontal-loop electromagnetic, very low frequency and magnetometer surveys.
o. Sabina, Sabina Option, Pab South, Loop Road, Brunswick Group, Brunswick #12, Brunswick # 6	475370	738	21 P/05W	Nov. 17, 2002	Seismic surveys.
p. Sabina, Sabina Option, Pab South, Loop Road, Brunswick Group, Brunswick #12, Brunswick # 6	475371	738	21 P/05W	Nov. 1, 2002	Airborne geophysics.
q. Tomogonops River/ Sprig Brook	475363	108	21 P/04W	Nov. 14, 2002	Diamond drilling.
30. Noranda Mining and Exploration Inc.					
a. Devils Elbow	475360	68	21 O/08W	Nov. 3, 2002	Grid establishment; horizontal-loop electromagnetic, very low frequency and magnetometer surveys; diamond drilling.
b. PL Group	475304	5	21 P/05W	Apr. 4, 2002	Diamond drilling; collection and analysis of lithogeochemical samples.
c. Red Pine Brook	475368	110	21 P/05E	Nov. 16, 2002	Diamond drilling; collection and analysis of lithogeochemical and assay samples.
31. Northeast Exploration Services Limited					
a. California Lake	475376	17	21 O/08E	Dec. 1, 2002	Compilation; drill core examination.
b. Gilmour South	475308	17	21 P/05W	Apr. 11, 2002	Compilation.
c. Mount Baird East	475355	9	21 O/07E	Oct. 30, 2002	Grid establishment; Max-Min and magnetometer surveys.
d. Tower North	475377	10	21 O/08W	Dec. 4, 2002	Grid establishment; prospecting; geologic mapping; collection and analysis of geochemical samples.
e. Wildcat	475318	36	21 O/09E	July 7, 2002	Grid establishment; very low frequency and magnetometer surveys.
33. PGE Resource Corp.					
a. Nowlan Lake	475310	20	21 O/08W	Apr. 28, 2002	Grid establishment; collection and analysis of soil samples; very low frequency and magnetometer surveys.

Claim Group	Geoscan No.	No. of Claims	NTS	Release Date	Description of Work
36. **Robichaud, F.**					
Norwest	475347	22	21 O/08W	Sept. 6, 2002	Grid establishment; prospecting; very low frequency, magnetometer and Max-Min surveys; collection and analysis of soil samples.
37. **Ross, F**					
Ross/Lanteigne	475344	1	21 O/08E	Sept. 5, 2002	Prospecting and very low frequency electromagnetic survey.
FREDERICTON					
12. **Freewest Resources Canada Inc.**					
Clarence Stream	475297	247	21 G/07W	Feb. 23, 2002	Grid establishment; magnetometer survey.
33. **PGE Resource Corp.**					
b. True Hill	475328	9	21 G/07W	Aug. 9, 2002	Prospecting; collection and analysis of grab samples; collection and analysis of soil samples.
PASSAMAQUODDY					
5. **Canoga Resources Ltd.**					
Sleeping Beauty	475379	22	21 H/12W	Dec. 11, 2002	Grid establishment; magnetometer and very low frequency electromagnetic surveys; collection and analysis of soil and rock samples.
11. **Fenety, Peter**					
Digdeguash	475349	5	21 G/02W	Sept. 19, 2002	Collection and analysis of soil samples.
26. **McMinn Pit Ltd.**					
a. Cow Lake	475306	4	21 G/02W	Apr. 4, 2002	Hammer auger drilling; analysis of diatomaceous material drilled.
b. Mudd Lake	475307	5	21 G/02W	Apr. 4, 2002	Hammer auger drilling; analysis of diatomaceous material drilled.
33. **PGE Resource Corp.**					
c. Albright Brook	475357	38	21 H/12W	Oct. 31, 2002	Prospecting; collection and analysis of grab samples; collection and analysis of soil and stream-sediment samples.
39. **Taylor, B.**					
Evandale	475298	13	21 G/09E	Mar. 5, 2002	Prospecting; geological mapping; collection and analysis of grab samples.

Claim Group	Geoscan No.	No. of Claims	NTS	Release Date	Description of Work
SAINT JOHN					
2. **Bernier, P.** Walton Lake	475351	4	21 H/11W	Oct. 12, 2002	Diamond drilling; analysis of drill core samples.
20. **J.D. Irving Limited** Bonney Road	475327	12	21 H/05W	Aug. 8, 2002	Diamond drilling.
35. **Pro-Max Resources Inc.** Armstrong Brook	475323	27	21 H/04W	July 17, 2002	Prospecting; collection and analysis of grab samples.
MARITIMES BASIN					
16. **Havelock Lime Ltd.** Hicksville	475299	27	21 I/03W	Mar. 7, 2002	Grid establishment; diamond drilling and analysis of drill core; detailed surveying; reserve calculations.
22. **Lafarge Canada Inc.** Springhill	475322	18	21 I/03W	July 19, 2002	Geological mapping and compilation; reserve calculation.
31. **Northeast Exploration Services Limited** f. Route 8	475342	35	21 P/12E	Aug. 16, 2002	Grid establishment; magnetometer survey.
34. **Phelps Dodge Corp. of Canada Ltd.** c. Jordan Mountain	475314	25	21 H/14W	June 12, 2002	Prospecting; collection and analysis of grab samples.

INDUSTRIAL MINERALS

Limestone

During 2000, exploration for industrial minerals focused mainly on expanding the resource potential for high-calcium limestone and titanium deposits. The main target for high-calcium products is Carboniferous limestone of the Windsor Group. Graymont (NB) Inc. [formerly Havelock Lime (a division of Goldcorp Inc.] conducted a 71-hole diamond-drilling program totalling 3193 m on its Hicksville property (Figure 6: 30) north of Havelock. The program, which was completed late in 1999, was successful in outlining a significant new resource and provided valuable geological information for further exploration. In the same area, Lafarge Canada Inc. re-evaluated deposits on its Springhill property (Figure 6: 31). A detailed geological mapping, compilation and resource calculation program led to a significant increase in reserves.

The Neoproterozoic Ashburn Formation also hosts high-calcium lime deposits, particularly immediately east of Saint John. In this area, J.D. Irving Limited drilled four short diamond-drill holes on its Bonney Road claim group (Figure 6: 32) and other companies conducted grass roots exploration activities on several properties.

Titanium

Noranda Inc. has re-activated its diamond-drilling program as a means of further investigating the titanium potential at Lower Coverdale (Figure 6: 33) south of Moncton. In this area, extensive titanium and phosphorus mineralization is associated with a Lower Devonian, mafic/ultramafic complex buried beneath the Carboniferous Cover Sequence. Two of the original diamond-drill holes will be deepened and additional holes are planned.

An American company has expressed interest in the Jurassic basaltic rocks that occur in southwestern New Brunswick. The company has developed a new process to produce filament from basalt for a variety of purposes. A marl occurrence was also being investigated in west-central New Brunswick.

Peat

Five new applications for peat exploration licences on Crown lands were received in 2000: Peatland 548 by Marc Gauvin; Peatlands 564 and 566 by Réginald Boudreau; Peatland 574 by La Mousse Acadienne (1979) ltée; Peatland 590 by Adrien Chiasson. One application for Option was received: Peatland 305 by La Mousse Acadienne (1979) ltée.

Since May 1999, all new applications received have been placed on hold pending the finalization of a government review of provincial policies concerning the peat industry.

Compagnie de Tourbe Fafard ltée

COMPANY Compagnie de Tourbe Fafard ltée, 422, chemin Pallot, Inkerman, New Brunswick E8P 1B5. Telephone: (506) 336-9715. The Manager is Denis Mallet.

RIGHTS Peat Exploration Licence 99-2 (410 ha) on Peatland 552, under the *Quarriable Substances Act*, Chapter Q-1.1, S.N.B. 1991.

LOCATION Peatland 552 is located 6 km southwest of Black Rock, Gloucester County (Figure 6: 34).

HISTORY Compagnie de Tourbe Fafard ltée had been issued a licence in 1988. A new licence was issued in 1991. In 1994, an option agreement was concluded. In 1997, the company applied again for an exploration licence. Peat Exploration Licence 99-2 was issued in April of 1999.

RESERVES AND GRADE 9.78 Mm^3 surficial peat; average depth 2.8 m; average humification 3.2 von Post.

Le Groupe Qualité Lamèque ltée

COMPANY Le Groupe Qualité Lamèque ltée, 86, rue de la Tourbe, Lamèque, New Brunswick E8T 1A3. Telephone: (506) 344-2293. The President is Florent Chiasson.

RIGHTS Peat Exploration Licence 99-1 (1274 ha) on Peatland 25, under the *Quarriable Substances Act*, Chapter Q-1.1, S.N.B. 1991.

LOCATION Peatland 25 is located 20 km northwest of Harcourt, Kent County (Figure 6: 35).

HISTORY Le Groupe Qualité Lamèque ltée first applied for an exploration licence in 1987. An option agreement was concluded in 1991. In 1998, the company applied for an exploration licence. Peat Exploration Licence 99-1 was issued in February 1999.

RESERVES AND GRADE 16.06 Mm^3 surficial peat; average depth 2.1 m; average humification of the horticultural grade peat 2.9 von Post.

Jiffy Products (N.B.) Ltd.

COMPANY Jiffy Products (N.B.) Ltd., C.P. 2004, Parc industriel, Shippagan, N.B. E8S 3H1. The Manager is Alonzo Dupuis. Telephone: (506) 336-2284.

RIGHT Peat Lease No. 32 (268 ha) on Peatland 536 under the *Quarriable Substances Act*, Chapter Q-1.1, S.N.B. 1991.

LOCATION Peatland 536 is located 8 km north of Tracadie-Sheila, between Pont-Landry and Ste-Rose, Gloucester County (Figure 6: 36).

HISTORY Jiffy Products (N.B.) Ltd., a subsidiary of Jiffy Products International, Oslo, Norway, established a peat pot and pellet manufacturing plant in Shippagan in 1975. In 1982, the company was issued a Peat Exploration Licence for Peatland 536. A Peat Lease was granted in 1989 to guarantee a long-term supply of quality peat moss for the manufacturing plant.

RESERVES AND GRADE 5.64 Mm^3 surficial peat; average depth 2.6 m; average humification 3.4 von Post.

DEVELOPMENT No new development. Peatland 536 is considered a reserve for future needs.

Premier Horticulture (Premier Tech ltée)

COMPANY Premier Horticulture, 1, avenue Premier, C.P. 2600, Rivière-du-Loup (Québec). Telephone: (418) 862-6356. The President is Michel Guay.

RIGHTS Peat Exploration Licence 99-3 (245 ha) on Peatland 324N, under the *Quarriable Substances Act*, Chapter Q-1.1, S.N.B. 1991.

LOCATION Peatland 324N is located 3 km south of Escuminac, Northumberland County (Figure 6:37).

HISTORY Premier Horticulture, a business unit of Premier Tech ltée, had been issued an option in 1999. It applied for and received a licence in July of the same year.

RESERVES AND GRADE An estimated 7.55 Mm^3 surficial peat; average depth 3.1 m; average humification 3.3 von Post.

HYDROCARBONS AND UNDERGROUND STORAGE

Oil and Natural Gas

Corridor Resources Inc.

COMPANY Corridor Resources Inc., Suite 301, 5475 Spring Garden Road, Halifax, Nova Scotia B3J 3T2.

RIGHTS Oil and Natural Gas On-shore Licence to Search 95-02 (35 165.3 ha), 95-03 (15 774.0 ha), 95-04 (20 072.4 ha), 95-05 (7762.9 ha), 97-02 (11 883 ha). 97-03 (35 930 ha), 97-04 (17 950 ha), 98-09 (18 005 ha), and 98-10 (17 980 ha) under the *Oil and Natural Gas Act*, Chapter O-2.1, R.S.N.B. 1976.

LOCATION Licences 95-02, 95-03, 95-04 and 95-05 are in the Dorchester to Port Elgin area (Figure 6: 47a) of Westmorland County (NTS 21 I/1, 21 H/16). Licences 97-02, 97-03, 97-04, 98-09 and 98-10 are in the Moncton Subbasin between Moncton and Sussex (Figure 6: 47b) in Kings, Westmorland and Albert counties (parts of NTS 21 H/13, 14, 15, 16; 21 I/01, 02).

HISTORY Corridor signed a joint venture agreement with Columbia Natural Resources by which Columbia purchased a 50% working interest in Corridor's licences 95-02, 95-03, 95-04, 95-05,97-02 and 97-03 The companies drilled two wildcat wells, TCH G-100-2329 and Copper Mine Hill F-88-2329 in licence 95-02. Corridor joint-ventured with Potash Company of Saskatchewan, Inc. in a four-section block of their licence 98-09, spudding two wells McCully 1/A67-2425 and McCully 2/A-67-2425

OUTLOOK The McCully wells intersected significant natural gas; delineation wells are planned.

Irving Oil Limited

COMPANY Irving Oil Limited, P.O. Box 1421, Saint John, New Brunswick E2L 4K1.

RIGHTS Oil and Natural Gas On-shore Lease 74-1 (2153.7 ha), under the *Oil and Natural Gas Act*, Chapter O-2.1, R.S.N.B. 1976.

LOCATION Lease 74-1, in the Stoney Creek field (Figure 6: 48) is 16 km south of Moncton in Albert County (NTS 21 H/15).

History Lease 74-1 is in the seventh year of the third ten-year term. There has been no oil production from the field since 1988 and no natural gas production since 1991.

Outlook The company submitted a report of the inventory and work completed in the previous year at the Stoney Creek field.

Jean Mariadassou

Company Jean Mariadassou, Suite 304, 7100 Bombardier, Anjou, Québec H1H 2G2.

Rights Oil and Natural Gas On-shore Licence to Search 97-01 (10 522 ha) under the *Oil and Natural Gas Act*, Chapter O-2.1, R.S.N.B. 1976.

Location The licence area is in northwestern New Brunswick, just northeast of St. Leonard (Figure 6: 49) in Madawaska County (NTS 21 O/04, 05).

History The Notre Dame de Lourdes #1 well remains suspended at a depth of 275 m.

Outlook The licensee continues to examine geological data for the area and hopes to deepen the well in future.

Columbia Natural Resources Canada, Ltd./MariCo Oil and Gas Corporation

Company Columbia Natural Resources Canada, Ltd. 65 Regent Street, Suite 220, Fredericton, New Brunswick E3B 7H8; MariCo Oil and Gas Corporation, 391 Brunswick Street, Fredericton, New Brunswick E3B 1H2.

Rights Oil and Natural Gas On-shore Licence to Search 93-02 (33 411.5 ha), 97-05 (35 823 ha), 97-06 (35 823 ha), 97-07 (17 898 ha), 97-08 (35 717 ha), 97-09 (35 717 ha), 98-01 (34 593 ha), 98-02 (35 930 ha), 98-03 (25 155 ha), 98-04 (10 779 ha), 98-05 (10 746.9), 98-06 (19 336 ha), 98-07 (35 717 ha), and 98-08 (15 352.9 ha) under the *Oil and Natural Gas Act*, Chapter O-2.1, R.S.N.B. 1976.

Location Licence area 93-02, located 10–20 km south of Moncton in the Turtle Creek area (Figure 6: 50a) of Albert County (NTS 21 H/15), is immediately west and along strike of the previously productive Stoney Creek oil and gas field. The 97-05 to 97-09 licences are located north and west of Moncton (Figure 6: 50b) in the counties of Albert, Kings, Kent, Queens and Westmorland, while the 98-01 to 98-08 licences are located northeast, east and south of Fredericton (Figure 6: 50c) in Sunbury and York counties.

History Licence to Search 93-02 was issued in July 1993 to Ardent Resources Inc. and subsequently transferred to MariCo. A farm-in by the company on Seglund's two licences and four leases increased their exploration rights in excess of 400 000 ha. MariCo formed a joint venture arrangement with Columbia Natural Resources Canada, Ltd. by which Columbia (operator) acquired 50% working interest in MariCo's New Brunswick licences and a 50% interest in the Downey No. 1 discovery well. A total of eight wells with an aggregate licenced depth of 17 400 m were drilled on licence 93-01 (MariCo Albert Mines

OW #4 H-55-2328, Columbia Taylor Village #3 C-27-2328, Columbia Beaumount L-24-2328, Columbia Boudreau L-44-2328), licence 93-02 (Columbia Beaver Brook #1 D-45-2327), licence 95-01 (Columbia Albert Mines L-44-2328) and licence 97-06 (Columbia Monteagle G-56-2226 and J-67-2226). Columbia acquired aeromagnetic data consisting of some 29 480 km of surveying in the south and southeast.

OUTLOOK The company examined the aeromagnetic data with a view to acquire two-dimensional reflection seismic data for the Cocagne, Marysville and Moncton Subbasin licences.

J.A. Seglund Inc.

COMPANY J.A. Seglund Inc., 9825 Ana Hula St., Diamond Head, Mississippi, U.S.A. 39525-4400.

RIGHTS Oil and Natural Gas On-shore Licences to Search 93-01 (10 057.1 ha), 95-01 (8990.5 ha) and Oil and Natural Gas On-shore Leases 99-01 (359.4 ha), 99-02 (1 436.2 ha), 99-03 (717.8 ha), and 99-04 (1 077.0 ha) under the *Oil and Natural Gas Act*, Chapter O-2.1, R.S.N.B. 1976.

LOCATION The two licences and four leases are about 15 km south of Moncton in the Albert Mines to Saint-Joseph area, on both sides of the Petitcodiac and Memramcook rivers (Figure 6: 51) in Albert and Westmorland counties, respectively (NTS 21 H/15).

HISTORY Former Licence to Search 91-01 was converted to four leases at the end of the term. Licence to Search 93-01 was issued on July 12, 1993 and Licence to Search 95-01 on February 14, 1995. A farmout agreement with MariCo and the subsequent joint venture with Columbia resulted in the spudding a number of wells in the agreement areas. (see Columbia/MariCo, above).

OUTLOOK The company plans to continue with drilling in the area.

RHT Enterprises Ltd.

COMPANY RHT Enterprises Ltd., 69 Biddington Ave., Lakeville, Westmorland County, New Brunswick E1H 1C2.

RIGHTS Oil and Natural Gas On-shore Lease 00-01 (2146.0 ha) under the *Oil and Natural Gas Act*, Chapter O-2.1, R.S.N.B. 1976.

LOCATION The lease area is northeast of Moncton between Lakeville and Cocagne (Figure 6: 52) in Westmorland County (NTS 21 I/02).

HISTORY The lease was converted at the end of the eight year term from two licences issued in January 1992 to Lakeside Estates Ltd. and later transferred to RHT Enterprises Ltd. of Moncton. The company drilled one dry hole with a second hole, RHT Lakeside No. 2, suspended.

OUTLOOK The company intends to re-enter RHT Lakeside #2 and complete the well when adequate funding can be secured.

Bituminous Shale

A.A. (NB) Inc.

COMPANY A.A. (NB) Inc., P.O. Box 3133, Station B, Fredericton, New Brunswick E3A 5G9.

RIGHTS Bituminous Shale Development Permit 97-01 (762.5 ha), and 97-02 (314.6 ha), under the *Bituminous Shale Act*, Chapter B-4.1, R.S.N.B. 1976.

LOCATION Development Permit 97-01 is located near Dover (Figure 6: 53a) in Westmorland County. Permits 97-02 is located at Albert Mines (Figure 6: 53b) in Albert County (NTS 21 H/15).

HISTORY The company submitted a report on the shallow core-hole drilling program conducted at 20 locations on its two permit areas.

Underground Storage

St. Clair Pipelines (1996) Ltd.

COMPANY St. Clair Pipelines (1996) Ltd., 50 Keil Drive North, Chatham, Ontario N7M 5M1

RIGHTS Underground Storage Exploration Licences 96-01 (898.5 ha) and 96-02 (1167.7 ha) under the *Underground Storage Act*, Chapter U-1.1 R.S.N.B. 1978.

LOCATION Licence 99-02 is in the Dorchester area (Figure 6: 54) of Westmorland County (NTS 21 H/15).

HISTORY Two three-year nonrenewable licences, 96-01 (Dorchester) and 96-02 (Point de Bute) were granted on February 23, 1996. Both licenced expired February 1999. The company applied for the Dorchester area prior to expiry and a new licence was granted for the 898.5 ha area.

OUTLOOK The single licence of St. Clair Pipelines (1996) Ltd. is in good standing.

Intragaz

COMPANY Intragaz, 6565, boul. Jean XXIII, Trois-Rivières-Ouest, Québec G9A 5C9.

RIGHTS Underground Storage Exploration Licences 00-01 (628.1 ha), 00-02 (7458.7 ha), 98-01 (15 363.1 ha), 98-02 (650.4 ha), 99-01 (2 446.4 ha), and 99-03 (1 347.4 ha) under the *Underground Storage Act*, Chapter U-1.1 R.S.N.B. 1978.

LOCATION Licence 00-01(Baie Verte), 00-02(Sackville), 98-01 (Port Elgin–Coppermine), 98-02 (Uniacke Hill), 99-01 (Jolicure), and 99-03 (Point de Bute) are located in Albert and Westmorland counties (Figure 6: 55).

HISTORY Intragaz continues to hold two of the original eight licences 00-01 and 00-02 in addition to Port Elgin–Coppermine, Uniacke Hill, Jolicure and Point de Bute areas.

OUTLOOK The company agreements are in good standing.

Call for Tenders #16
Oil and Natural Gas Licence to Search

A call for tenders late in the year, closing date of December 7, 2000, resulted in five companies bidding a total of $8,258,687.00 in work commitments on eight parcels of land. The companies, Columbia Natural Resources Canada, Ltd., Potash Corporation of Saskatchewan, Inc. (PCS), Corridor Resources Inc., Norton Energy Corp. and Corridor / PCS will have two-years to conduct exploration work equivalent to the dollar amount bid. The total area of the licences to search covers 110 428.5 ha. in eastern and south-central New Brunswick. Agreements for these eight blocks will be issued in the new year.

CHAPTER 3. MINES AND QUARRIES

PRODUCTION STATISTICS

The 2000 value of mineral production (including coal) in New Brunswick is estimated to be $790 573 087, representing a drop of 7% from the final value of $848 536 514 in 1999 (Tables 4 and 5; Figure 8). The year 2000 marked the first full year without production from Noranda's Heath Steele base metals mine, which closed at the end of October, 1999. An increase in the zinc price was not sufficient to offset this loss of production in the metals sector. The Canadian dollar averaged US 67.34¢ for the year, almost identical to its average value in 1999.

The value of metals production during the year was $522 973 342, which represents 66% of the Province's value of mineral production. Overall, the sector was down by 12% because of the closure of Heath Steele. Noranda's Brunswick mine experienced slightly higher throughput. CanZinco's Caribou mine remained shut down for the second full year after low metal prices and metallurgical difficulties had forced a suspension of operations in August 1998. Zinc continued to dominate the metals sector, with a value of $397 871 437, which represents 76% of the total value of metals. The value of zinc production decreased approximately 12% from 1999. The average price of zinc increased by 4.9% between 1999 (48.8¢/lb. [U.S.]) and 2000 (51.2¢/lb. [U.S]). The average exchange rate of the Canadian dollar was not a factor in the value of production, as it remained unchanged from the year before. Lead contributed $44 602 156 to the value of metal production, down 17% from 1999. Production of lead fell by 8%, while the price fell by almost 10%. The 2000 average London Metal Exchange price for lead was 20.6¢/lb. (U.S.), down from 22.8¢/lb. (U.S.) in 1999. The value of copper production increased by 2%, to $25 507 065 on the strength of a 15% increase in the price (82.2¢/lb. in 2000 vs 71.4¢/lb. in 1999), even though production fell by 11%. Antimony, bismuth, and cadmium continued to be produced as by-products from the Brunswick operation. The total value of the three by-product metals was practically

Table 4. Value of Mineral Production* in New Brunswick, 1989 to 2000(P)
(Source: Natural Resources Canada)

Calendar Year	Metals ($)	Nonmetals ($)	Fuels ($)	Structural Materials ($)	Total ($)
1989	582 439 000	210 998 000	33 740 000	45 896 000	864 073 000
1990	584 491 926	208 784 840	37 200 000	47 449 277	877 926 043
1991	375 427 470	220 185 000	34 185 000	41 663 590	671 475 483
1992	594 174 162	243 745 074	32 200 000	38 001 869	908 121 105
1993	489 912 908	208 094 381	33 800 000	40 042 060	771 849 349
1994	543 445 558	252 225 522	28 450 000	37 923 292	862 044 372
1995	670 694 700	281 088 407	24 410 000	44 459 331	1 020 652 438
1996	586 293 968	301 627 615	24 030 000	42 731 027	954 682 610
1997	657 532 566	238 936 898	18 190 000	38 411 671	953 071 135
1998	609 944 183	188 890 558	22 850 000	41 307 613	862 992 354
1999	595 437 842	185 020 794	20 870 000	47 207 878	848 536 514
2000(P)	522 973 342	202 846 361	24 172 000	40 581 384	790 573 087

(P) Preliminary figures; * Current dollars

Table 5. Mineral Production in New Brunswick, 1999 and 2000(P)
(Source: Natural Resources Canada)

Commodity	Unit	1999 Final		2000 Preliminary	
		Quantity	Value ($)	Quantity	Value ($)
Metals					
Antimony	kg	*	*	*	*
Bismuth	kg	206 572	2 285 306	194 230	2 231 120
Cadmium	kg	250 419	145 243	217 312	114 306
Copper	kg	10 636 176	24 984 377	9 422 632	25 507 065
Gold	g	*	*	*	*
Lead	kg	71 978 394	53 695 882	66 570 382	44 602 156
Silver	kg	227 879	57 151 012	205 909	49 184 128
Zinc	kg	283 924 907	453 995 926	237 535 186	397 871 437
TOTAL			595 437 842		522 973 342
Nonmetals					
Marl	t	*	*	*	*
Peat	t	422 100	51 450 226	470 710	59 621 134
Potash	t	*	*	*	*
Quartz (silica)	t	*	*	*	*
Salt	t	*	*	*	*
Sulphur (in smelter gas)	t	106 451	7 326 184	106 451	6 838 412
TOTAL			185 020 794		202 846 361
Fuels					
Coal	t	252 000	20 870 000	243 000	[illegible] 172 000
TOTAL			20 870 000		[illegible] 172 000
Structural Materials					
Lime	t	*	*	*	*
Sand and Gravel	t	4,491 888	*	3 720 956	*
Stone	t	4 387 843	23 140 577	3 436 349	19 212 257
TOTAL			47 207 878		40 581 384
GRAND TOTAL (CDN)			$ 848 536 514		$ 790 573 087

* confidential information   GRAND TOTAL 1998 (CDN $) $ 862 992 354   March, 2001

unchanged. Gold production increased by 6.6% after a substantial decline in 1999 and the value increased by a similar margin as the price remained unchanged. After a drop in 1999, the value of silver production fell by a further 14%, as a 9.6% decrease in production was compounded by a 4.9% drop in the average price.

The nonmetals sector of the industry contributed $202 846 361 (26%) to the value of mineral production, a 10% increase over the 1999 value. The largest contributor to the value of nonmetals production is potash. Both the value and quantity of potash increased from 1999 levels. Peat, the second largest contributor ($59 621 134) to the value of nonmetals production, represented 29% of the value of nonmetals.

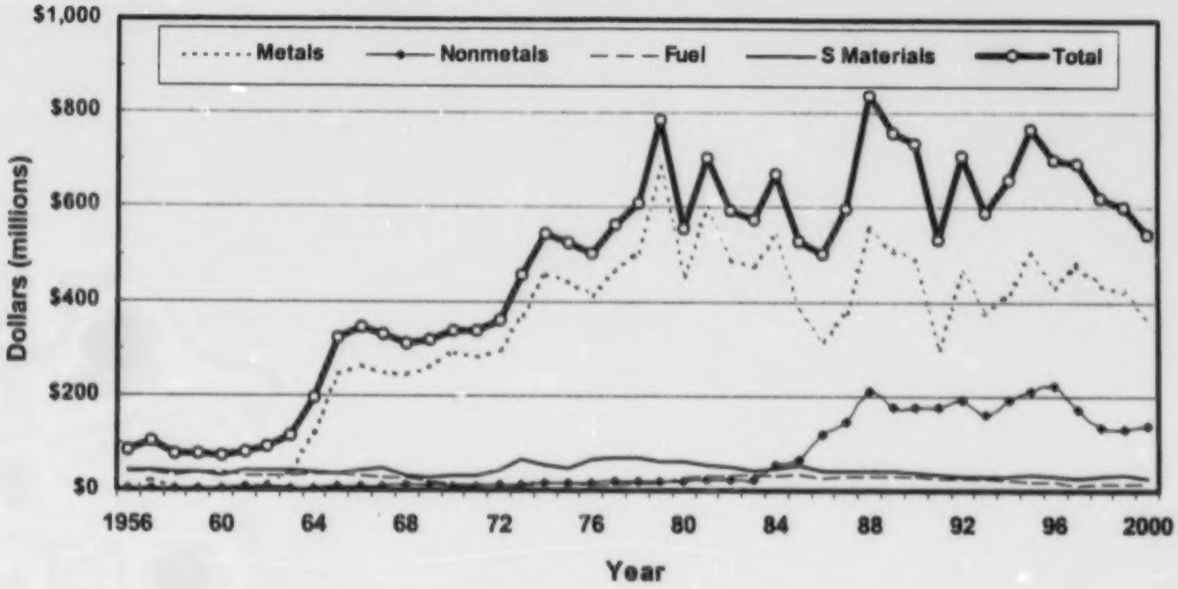

Figure 8. Value of mineral production in New Brunswick, 1956–2000. Abbreviations: S Materials–structural materials. Source: Natural Resources Canada (1986=100).

For the second consecutive year, both the amount and value of peat produced were higher than in the year before. Salt and sulphur in smelter gas ranked next in value of production, with quartz and marl being minor contributors to the nonmetals sector.

The value of coal produced by N.B. Coal Limited in the Minto–Chipman area increased by 16% to $24 172 000, despite a 4% decrease in production.

The value of production for structural materials (lime, stone, sand and gravel) decreased 14% to $40 581 384. Sand and gravel production was down 17%, while stone production decreased by almost 22%. These commodities provide the raw material for the construction industry in New Brunswick.

EMPLOYMENT

The mineral industry employed an average of 3430 people in 2000. The following shows employment (permanent and seasonal) by sector in the mineral industry for 2000:

Metals	1617	Peat	400*
Potash	419	Structural Materials	100
Coal	95	**Total**	**2633**

* figure has been adjusted to reflect full-time employment; figure of 1199 includes seasonal employment.

Table 6. Rank of the Provinces and Territories in Value of Production for Leading Minerals in Canada, 2000 (P)

Mineral	NF	PE	NS	NB	PQ	ON	MB	SK	AB	BC	YT	NT	NV	Total Value Canada ($000)
Antimony				2						1				775
Bismuth				1						2				2 323
Cadmium				3	2	1				4				576
Clay Products			x		x	1		x	x	x				175 449
Coal			4	5				3	2	1				1 315 280
Copper				5	3	2	4	6		1				1 687 681
Gold	9			10	2	1	4	8	11	3	6	5	7	2 045 444
Lead				1						2			3	95 843
Lime				x	x	1	x		x	x				240 216
Marl				x										x
Peat	*	*	x	1	2		x	x	*					167 830
Potash				x				x						1 714 453
Salt			x	x	x	1		*	*					346 512
Sand & Gravel	9	12	8	7	4	1	6	5	2	3	11	10		956 209
Silver	9			2	3	4	5	10		1	7	8	6	277 306
Stone	5		4	6	2	1	7		8	3		9		821 926
Sulphur (in smelter gas)				3	2	1				4				54 520
Sulphur (elemental)	x					x	x	*	1	x				98 370
Zinc				1	2	5	6	7		4			3	1 567 274

Source: Statistics Canada Catalogue 26-202

x Confidential information under the *Statistics Act of Canada*

* Unable to calculate ranking

(P) Preliminary estimate

METALLIC MINERALS

Noranda Inc.—Brunswick Mine

COMPANY Noranda Inc.—Brunswick Mine (formerly known as Noranda Mining Inc.—Brunswick Mining Division). Head Office: P.O. Box 755, Ste 4100, BCE Place, 181 Bay St., Toronto, Ontario M5J 2T3. Telephone: (416) 982-7111; Mine Office: P.O. Box 3000, Bathurst, New Brunswick E2A 3Z8; Smelter Office: P.O. Box 2000, Belledune, New Brunswick E0B 1G0. The Chief Operating Officer is Derek Pannell, the President and Mine Manager is Jean Desrosiers.

RIGHTS In 1962, Brunswick Mining and Smelting Corporation Limited was granted surface and mineral rights to the No. 12 mine property.

LOCATION Brunswick owns Canada's largest zinc deposit and operates one of the world's largest zinc mines. The company also operates a concentrator and lead smelter. The Brunswick No. 12 mine

(Figure 9: 1a) is about 24 km west of Bathurst in Gloucester County. The concentrator is adjacent to the No. 12 mine; the lead smelter (Figure 9: 1b) is at Belledune Point, about 45 km from the No.12 mine.

HISTORY (Early history is described in Miscellaneous Report 13, "New Brunswick's Mineral Industry, 1993.")

In March, the failure of a section of the surface conveyor gallery caused a one-week loss of production. In the summer and fall, the mine experienced heightened seismic activity underground, which resulted in one of the main production areas (the South Block) becoming unavailable for mining. The company embarked on an intensive campaign to rehabilitate the affected area through ground control and stress relief measures. These activities are continuing. Despite the disruptions, production rates remained high and Brunswick in fact finished the year with an average production rate of 9400 t/d, ahead of the planned tonnage of 9300 t/d. The company expects that the South Block will successfully be brought back into production.

EMPLOYEES In 2000, there were, on average, 978 regular and contract employees at the mine and 622 employees at the smelter.

RESERVES Proven and probable ore reserves: 32 217 000 t grading 0.38% Cu, 8.75% Zn, 3.46% Pb, 104.0 g/t Ag.

PRODUCTION In 2000, 3 476 737 t of ore were milled.

Production	Copper	Lead	Zinc	Silver/Bulk
Grade	0.43%	3.35%	8.87%	112 g/t Ag
Recovery	57.66%	61.18%	85.86%	57.38% Ag
Concentrate	35 830 t	129 730 t	458 149 t	69 533 t bulk

The company produces zinc concentrate destined mainly for Noranda's Canadian Electrolytic Zinc refinery in Valleyfield, Québec and a number of refineries in Europe; lead concentrate for the Belledune smelter; bulk concentrate for Europe; and a copper concentrate mainly for the Noranda smelter in Murdochville, Québec.

CanZinco Ltd.–Caribou Mine Division
(formerly East West Caribou Mining Limited)
Restigouche and Caribou Mines

COMPANY CanZinco Ltd., owned by Breakwater Resources Limited. The head office is 95 Wellington Street West, Suite 2000, Toronto, Ontario, M5J 2N7. The Chairman and CEO is Gordon F. Bub. Telephone: (416) 363-4798. The local address is P.O. Box 26, Bathurst, New Brunswick E2A 3Z1. Telephone: (506) 546-1999. The President and Chief Operating Officer of CanZinco Ltd. is Colin Benner, the General Manager of Caribou Mine is John Martin.

RIGHTS In 1999, CanZinco Ltd., a wholly owned subsidiary of Breakwater Resources Ltd. held a block of 43 claims (*Mining Act*, Chapter M-14.1, S.N.B. 1985) and Mining Lease 255.

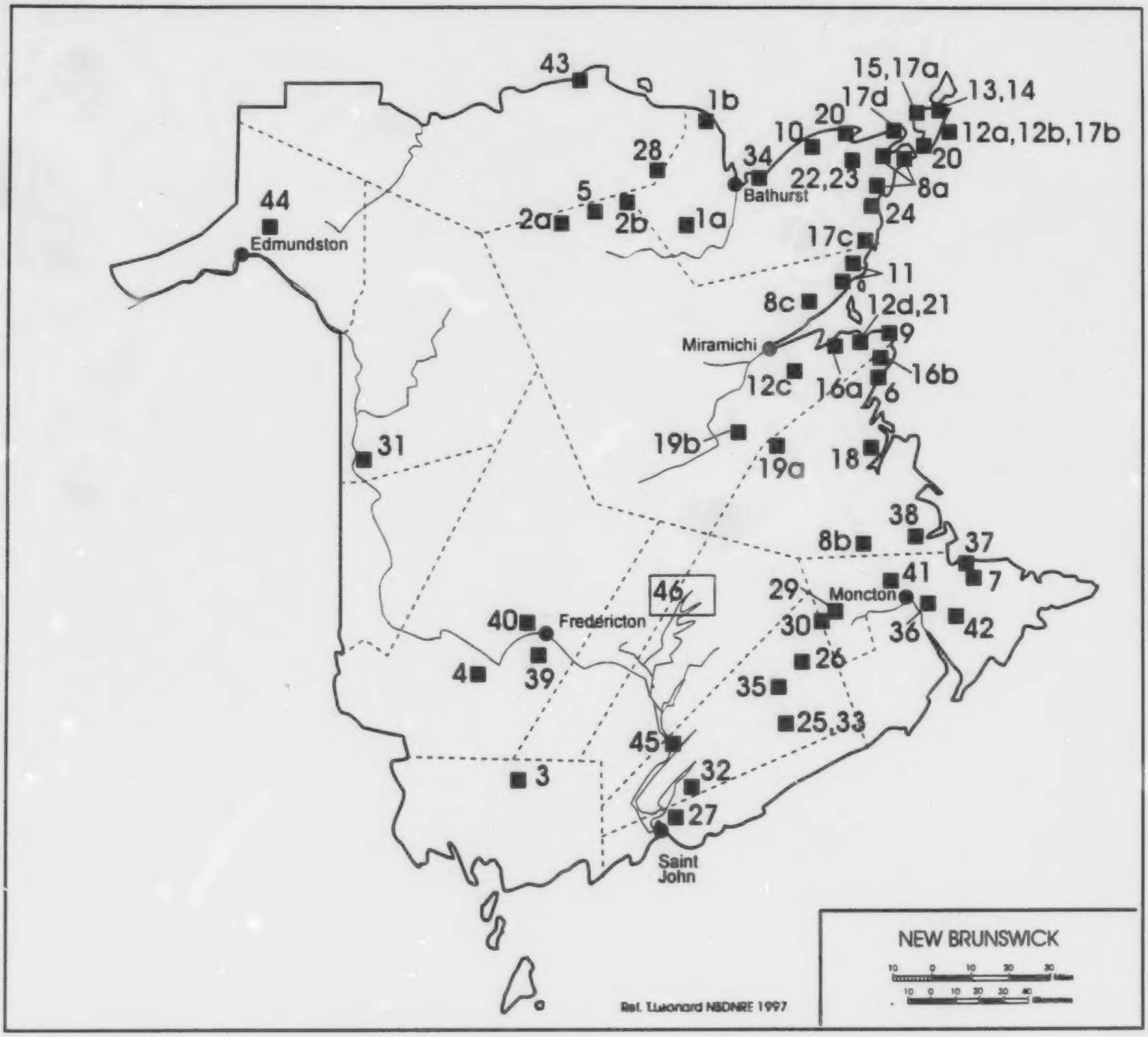
43
1b
15,17a
13,14
17d
20
10
12a,12b,17b
28
34
20
22,23
8a
5
Bathurst
44
2a
2b
1a
24
Edmundston
17c
11
8c
12d,21
9
Miramichi
12c
16a
16b
6
19b
19a
18
31
38
8b
37
41
7
46
29
Moncton
40
Fredericton
30
36
42
26
4
39
35
25,33
45
3
32
27
Saint John
NEW BRUNSWICK
10 0 10 20 30 Miles
10 0 10 20 30 40 Kilometres
Ref. L.Leonard NBDNRE 1997

Figure 9. Nonrenewable (metallic and industrial mineral, and energy) resource producers in New Brunswick in 2000.

1. Noranda Inc.: (a) Brunswick mine (Pb, Zn); (b) Belledune lead smelter
2. CanZinco Ltd.–Caribou Mine Division: (a) Restigouche mine (Zn, Pb, Ag, Cu); (b) Caribou mine (Zn, Pb, Cu, Ag, Au)
3. ADEX Mining Inc., Mount Pleasant mine (Sn, In, W, Mo, Zn, Cu, Bi)
4. APOCAN Inc., Lake George mine (Sb)
5. Murray Brook Resources Inc. (a wholly owned subsidiary of NovaGold Resources Inc.), Murray Brook mine (Au, Cu, Pb, Zn)
6. ASB Greenworld Ltd. (peat)
7. Beausejour Peat Moss Inc. (peat)
8. Compagnie de Tourbe Fafard ltée: (a) Shippagan; (b) Kent; (c) Burnt Church
9. Good Earth Canada Ltd. (peat)
10. Grande Anse Peat Moss Co. Ltd. (peat)
11. Heveco Ltd. (peat)
12. La Mousse Acadienne (1979) ltée (peat): (a) Acadienne; (b) Chiasson; (c) Miramichi; (d) Eel River
13. La Tourbe de Pigeon Hill ltée (peat)

LOCATION The Restigouche Zn, Pb, Ag, Cu deposit (Figure 9: 2a) is on the Road to Resources (Highway 180), about 80 km west of Bathurst in Restigouche County. (NTS 21O/7, 10). The Caribou mine (Figure 9: 2b) is also on the Road to Resources, about 50 km from Bathurst (NTS 21O/9).

HISTORY (Early history is described in Miscellaneous Report 13, "New Brunswick's Mineral Industry, 1993.")

(Figure 9 concluded)

14. La Tourbière de Petit-Shippagan (peat)
15. La Tourbière du Centre de l'Île ltée (peat)
16. Le Groupe Berger ltée (peat): (a) St-Camille area; and (b) Bay du Vin area
17. Le Groupe Qualité Lamèque ltée (peat): (a) Lamèque; (b) St. Raphaël; (c) Canadian Supreme; (d) Pokesudie
18. Malpec Peat Moss Ltd. (peat)
19. Premier Horticulture (Premier Tech ltée) (peat): (a) south and (b) west of Rogersville
20. Sun Gro Horticulture Canada Ltd. (peat)
21. Theriault & Hachey Peat Moss Ltd. (peat)
22. Tourbière 2000 inc. (peat)
23. Tourbière L.M. ltée (peat)
24. Tourbière Tracadie ltée (peat)
25. Potash Corporation of Saskatchewan Inc. (Cassidy Lake Division) (processing facility)
26. Potash Corporation of Saskatchewan Inc. (New Brunswick Division) (potash, salt)
27. Brookville Manufacturing Company (limestone, dolomite)
28. Elmtree Resources Ltd. (limestone)
29. Graymont (NB) Inc. (limestone)
30. Lafarge Canada Inc. (limestone)
31. Upper Kent Lime Works Ltd. (marl)
32. Kingsway Materials Ltd. (limestone)
33. Atlantic Silica Inc. (silica)
34. Chaleur Silica (a Division of The Shaw Group) (silica)
35. Nelson Monuments Ltd. (dimension stone)
36. Maritime Stone Works Inc. (dimension stone)
37. Smith Cut Stone and Quarries Limited (dimension stone)
38. Bastarache Stone Quarrie (dimension stone)
39. Diamond Construction Limited (crushed stone)
40. Gray Stone Quarries, a division of Tri Gil Paving and Construction Ltd.; Warren Maritimes Ltd. (crushed stone)
41. Moncton Crushed Stone, a Division of Modern Construction Ltd.; H.E. Carson Limited (crushed stone)
42. Acadia Crushed Stone Division of Modern Construction Ltd.; MacDonald Paving and Construction Limited (crushed stone)
43. C.M. Stewart Company Limited (crushed stone)
44. Clarence Daigle et Fils Ltée (crushed stone)
45. Lafarge Construction Materials (sand and gravel)
46. N.B. Coal Limited (coal)

Marshall Minerals Corp. acquired the property rights from Placer Dome Inc. in March 1988. Results of an extensive drilling program to further define reserves and processability of the ore proved favourable and, in February 1989, Marshall registered under the Province's Environmental Impact Assessment (EIA) Regulation. The project was subsequently screened in because the deposit is situated on Charlotte Brook, which flows into Upsalquitch Lake, a well-known sport fishing area in a relatively undisturbed part of the province. The company completed its EIA report and in August 1990 received a positive response from the Lieutenant-Governor-in-Council to its proposal to proceed with project development. A security of $1 600 000 was required to ensure the environmental integrity of the operation.

Marshall proceeded no further than the EIA approval in its acquisition of required government approvals. Although delays associated with the EIA process, the sharp downturn in zinc prices, and the closure of the Caribou operation motivated the company to put the deposit up for sale, the company later renewed its interest in the deposit. In 1993 with federal/provincial funding, Marshall continued metallurgical studies on the ore and initiated environmental and pit design studies.

In 1995, Breakwater Resources Ltd., owner of the nearby Caribou mine, announced a metallurgical breakthrough that would enable the company to consider reopening the Caribou mine. Following a positive feasibility study and testing of Restigouche ore, Breakwater reached an agreement to purchase the Restigouche deposit from Marshall, with the intention of shipping Restigouche ore to the Caribou mill for processing. In 1996, Breakwater Resources, through its subsidiary East West Caribou Mining Ltd., received regulatory approval to mine the Restigouche deposit. Mining of the deposit began in the spring of 1997.

GEOLOGY The deposit occurs within the Middle Ordovician Mount Brittain Formation at the contact between feldspar-crystal poor (footwall) and feldspar-crystal rich (hanging wall) felsic volcanic rocks. The orebody is elongate in form and plunges to the northwest at 15–20°, oblique to the northeast structural trend. It is 490 m long and averages 90 m wide and 30 m thick. The deposit consists of two separate, stratabound, massive sulphide lenses that coalesce in the central part of the orebody. The sulphides comprise, in order of abundance, pyrite, sphalerite, galena, and chalcopyrite and have been traced to a vertical depth of 183 m to the north. Two northwest-trending diabase dykes transect the Restigouche deposit and are parallel to faults that exhibit minor offset.

EMPLOYEES Fifteen people remain on site, two at Restigouche and the remainder at Caribou.

RESERVES Marshall Minerals Corp. reported total reserves of 1 730 000 t grading 0.35% Cu, 5.36% Pb, 6.94% Zn, 112.1 g/t Ag, and 1.2 g/t Au. This includes 1 150 000 t of open pit reserves grading 0.38% Cu, 5.96% Pb, 7.71% Zn, 124.1 g/t Ag, and 1.37 g/t Au using a 6% combined lead–zinc cutoff.

PRODUCTION The two operations have a combined production rate of 3000 t/d (1650 t/d for Caribou and 1350 t/d for Restigouche).

STATUS Operations remained suspended in 2000, pending improved metal prices, refurbishment of the concentrator and securing of financing.

DEVELOPMENTS As part of the 1997 operating plan, the Caribou concentrator was extensively modified and expanded. It was redesigned to produce separate zinc and lead concentrates, rather than a bulk concentrate as was the case when it last operated (in 1990). Surface preparation of the Restigouche open pit began in the fall of 1996. The first ore was produced in the spring of 1997. All ore from the Restigouche site was trucked to the Caribou mine site (Figure 7:2b) for processing. Notable efforts were made to protect the sensitive local environment.

Falling metal prices and metallurgical difficulties encountered in processing the combined Caribou and Restigouche mine ores caused a suspension of operations at both mines in August 1998.

ADEX Mining Inc.
(Mount Pleasant Mine)

COMPANY ADEX Mining Inc. (previously ADEX Mining Corp.) has its head office at 172 King St. E., Suite 810, P.O. Box 13, Toronto, Ontario M5A 1J3. Telephone: (416) 947-1179. Local address: P.O. Box 150, St. George, New Brunswick E0G 2Y0. The Chairman and Chief Executive Officer in 1999 was William B. Burton.

RIGHTS In 1999, ADEX Mining Corporation held 102 claims (4 claims covering the mine area and 98 claims surrounding the mine area) under the *Mining Act*, Chapter M-14.1, S.N.B. 1985.

LOCATION The Mount Pleasant Sn, In, W, Mo, Zn, Cu, Bi property (Figure 9: 3) is about 50 km northeast of St. Stephen, Charlotte County, New Brunswick (NTS 21 G/7W).

HISTORY (Early history is described in Miscellaneous Report 13, "New Brunswick's Mineral Industry, 1993.")

In December 1993, Piskahegan Resources Limited purchased the Mount Pleasant mine property from LAC Minerals Ltd. and Billiton Metals Canada Ltd. In 1994, ADEX Mining Corporation agreed to fund exploration and metallurgical work in the amount of $525 000, with the aim of earning the right to acquire a 50.1% interest in Piskahegan Resources Limited. On May 1, 1995, ADEX Mining Corporation acquired 100% of Piskahegan Resources Limited for $9 300 000 in cash and shares. Meanwhile, exploration and metallurgical testing continued while the company attempted to secure financing commitments. In November 1995, the name of the company was changed to ADEX Mining Inc.

In April 1996, ADEX Mining Inc. announced it had secured a financing commitment from the Malaysian Smelting Corp. (MSC), under which MSC would have the right to acquire up to 51% of ADEX for $28 000 000. The bulk of the investment was conditional on the delivery of a positive feasibility study for the development of the Mount Pleasant mine. Of the total investment, $2 000 000 was earmarked for the preparation of the study. In 1997, ADEX received a consultant's feasibility study. The conclusions were disappointing, as the estimated capital costs were too high to justify a production decision at that time.

RESERVES (Source: ADEX Mining Corporation, Summary Prefeasibility Report, Oct. 1995)

Zone	Description	Category	Tonnage (t)	Grade						
				Sn (%)	Zn (%)	Bi (%)	In (g/t)	Cu (%)	MoS_2 (%)	WO_3 (%)
North	Endo & Contact	Proven	2 774 000	0.9	0.34	0.08	46.88	0.14	0.06	0.13
	Zones (u/g)	Probable	60 000	0.92	0.34	0.08	46.88	0.14	0.06	0.13
	Possible	200 000	1.15	0.34	0.08	46.88	0.14	0.06	0.13	
North	Deep tin (u/g)	Probable	2 140 000	0.6	0.8	0.06	121.19	0.12	0.05	0.08
North	Tin lodes (o/p)	Probable	2 000 000	0.2	0.96	—	125	0.1	—	—
North	W–Mo–Bi (u/g)	Possible	11 500 000	0.11	0.33	0.08	31.25	0.05	0.09	0.24
Saddle	Tin deposit (u/g)	Possible	2 000 000	0.92	0.34	0.08	46.88	0.14	0.06	0.13
Fire Tower	W–Mo–Bi (u/g)	Proven	9 000 000	0	0.08	0.1	31.25	0.05	0.2	0.4
Fire Tower N	Tin deposit (u/g)	Possible	250 000	0.19	2.24	0.13	206.25	0.14	0.2	0.28
Halo	(u/g and o/p)	Possible	15 000 000	—	1.5	—	109.38	—	—	—

Notes: 1 oz./ton equals 31.0025 g/t; u/g (underground); o/p (open pit)

The company's positive prefeasibility study was based on proven and probable reserves of 5 100 000 t grading 0.77% tin, 2.3 oz./ton indium, 0.5% zinc and 0.12% copper.

PRODUCTION None since 1985.

STATUS The operation continues to be suspended. At year-end (2000), the property remained under care and maintenance.

EMPLOYEES During 2000, one company officer was on site.

DEVELOPMENTS The company is continuing attempts to reach agreement with outside investors on the sale of the property.

APOCAN Inc.

(Lake George Mine)

COMPANY APOCAN Inc. The mine address is R.R. 1, Prince William, New Brunswick E0H 1S0. Telephone is (506) 366-2885. The Mine Manager is Wayne Marshall.

RIGHTS In 1999, APOCAN Inc. held Mining Lease 250 under the *Mining Act*, Chapter M-14.1, S.N.B. 1985.

LOCATION The Lake George antimony mine (Figure 9: 4) is approximately 15 km north of Harvey Station and 40 km west-southwest of Fredericton, York County (NTS 21 G/14E).

HISTORY (Early history is described in Miscellaneous Report 19, "New Brunswick's Mineral Industry, 1994.")

In 1987, Landmark Corporation (formerly Durham Resources Inc.) sold the property to Dominion Explorers Inc., one of its subsidiary companies. The low price of antimony concentrate, the unfavourable exchange rate for the Canadian dollar, and low ore reserves forced Dominion Explorers Inc. to reduce annual operating costs as much as 12% in an attempt to remain viable. A work-sharing program was negotiated with the Federal government but was not fully implemented. The operation continued through 1989 but was shut down permanently on January 19, 1990.

Following the closure of the mine, the property was purchased by APOCAN Inc.; Mining Lease 250 was transferred to the company in February, 1990. As a result of sharply higher antimony prices in the second half of 1994, APOCAN decided to resume operations at the Lake George mine. A Certificate of Approval to dewater the underground workings was issued in October, 1994 and in December work began on the installation of a new hoist.

Mine production officially resumed in July 1996. Production targets were reached or exceeded, but problems with the hoist caused a shutdown in December of the same year. The shutdown was prolonged by a sharp drop in the antimony price. Despite hopes that the price would recover sufficiently to allow a resumption of operations, high metal inventories in global markets continue to depress the price.

RESERVES Proven, probable and possible ore reserves: 262 000 t of ore grading 3.45% Sb.

STATUS The operation remains suspended.

DEVELOPMENTS At year-end, the mine continued to be under care and maintenance.

Murray Brook Resources Incorporated
(a wholly owned subsidiary of NovaGold Resources Inc.)
(Murray Brook Mine)

COMPANY The Murray Brook gold, copper, zinc, lead deposit is owned and was operated by Murray Brook Resources Incorporated, whose parent company is NovaGold Resources Inc. The head office for NovaGold Resources Inc. is: 3 Spectacle Lake Drive, Suite 300, Dartmouth, Nova Scotia, B3B 1W8. Telephone: (902)468-9270. The Chairman and Chief Executive Officer is Gerald J. McConnell; the President and Chief Operating Officer is Rick van Nieuwenhuyse; the Vice-President of Canadian Operations is William L. Young.

RIGHTS In 1999, Murray Brook Resources Incorporated held Mining Lease 252 under the *Mining Act*, Chapter M-14.1, S.N.B. 1985.

LOCATION The Murray Brook deposit (Figure 9: 5) is approximately 80 km west-southwest of Bathurst in Restigouche County (NTS 21 O/9W). It is accessible via Highway 180 and a newly built access road.

HISTORY (Early history is described in Miscellaneous Report 13, "New Brunswick's Mineral Industry, 1993.")

Murray Brook Resources Inc. successfully completed the mining and vat-leach (indoor) processing of the gold-bearing gossan in early 1992. Known for its innovative extraction methods, the company began mining the underlying copper zone in late 1992, with the intention of extracting the metal using a bio-assisted, sulphuric acid, heap-leach (outdoor) method. Unforeseen delays caused the project to miss the seasonal window for this process and startup was delayed. The agreement that NovaGold Resources signed with Arimetco International Inc. and Breakwater Resources Ltd. to develop further the copper zone of the Murray Brook mine expired with neither company exercising its option.

GEOLOGY The Murray Brook deposit occurs within fine-grained sedimentary rocks that conformably underlie feldspar-phyric tuff of the Middle Ordovician Mount Brittain Formation and gradationally overlie quartz wacke and slate of the Miramichi Group. Previously, these sedimentary rocks were assigned to the Patrick Brook Formation, part of the Miramichi Group, but since the discovery of thin interbedded tuff layers, they are now included in the Mount Brittain Formation. The latter is structurally overlain by mafic volcanic rocks of the Boucher Brook Formation.

The deposit, which prior to mining was capped by a thick gossan, dips moderately to the northwest, plunges gently to the northeast, and appears to pinch out in that direction. It is surrounded by a 1–3 m-wide halo of chloritized sedimentary rocks containing disseminated pyrite. The massive sulphides comprise pyrite, sphalerite, chalcopyrite, galena, and arsenopyrite, in decreasing order of abundance and are divisible into copper, pyrite and lead–zinc zones. The copper zone occurs along the footwall and hanging-wall contacts and is generally separated from the lead–zinc zone by a zone of massive pyrite containing minor amounts of the other sulphides.

EMPLOYEES There were no permanent employees at the mine site in 2000. A number of consultants and contractors were on site to supervise and perform reclamation activities.

RESERVES Geological resources of the copper zone are 596 000 t grading 2.81% Cu.

PRODUCTION During the three years the mine operated (1989–1992), 1 413 155 g (45,434 oz.) of gold and 10 776 kg (346,457 oz.) of silver were produced.

STATUS The operation is now closed.

DEVELOPMENTS Under the impact of a substantially lower copper price, the company decided in 1998 not to proceed with further mining at Murray Brook, despite some initially encouraging results from exploration drilling at the site. During the year, the company completed a UTEM survey and drilled 14 holes on its Murray Brook deposit. The object of the drilling was to test the down-plunge extent of the known Cu zone and to determine if the deposit has a significant Pb–Zn zone prior to reclaiming the open pit. Modelling of the data from previously drilled vertical holes, using a commercially available 3-D software package, showed that the deposit was virtually untested toward the northwest, in the F_2 down-plunge direction. The drilling confirmed that the deposit does continue to the northwest. The best reported Cu intersection was in hole MB-98-3, which contained 13.6 m grading 4.35% Cu, including 7.0 m grading 7.29% Cu. The best reported lead–zinc intersection was in hole MB-98-5A, which contained 20.2 m grading 2.08% Pb, 6.07% Zn and 73.66 g/t Ag. Some reclamation work was done during the year, including the placement of the remaining stockpiled copper ore in the pit.

In 1999, the company received government approval of its updated reclamation plan. Final reclamation began in the spring of 2000 and was completed in September.

INDUSTRIAL MINERALS

The extraction and processing of industrial minerals resources in New Brunswick is, for the most part, directed to the following ten commodities: peat, potash, salt, limestone, dolomite, marl, silica, dimension stone, crushed stone, and sand and gravel. Several of these are exported to markets throughout the world.

Peat

Seventeen peat companies were active in the Province in 2000. Most of the development is concentrated in northeastern New Brunswick, mainly in the Acadian Peninsula of Gloucester County east of Bathurst, and in the Baie-Ste-Anne region of Northumberland and Kent counties to the east and southeast of Miramichi (Figure 9). About 85% of the 4300 ha currently opened for production are located on Crown lands.

Peat production in 2000 totaled 13 600 000 bales, a decrease of 6% compared to the preceding year. Shipments reached a record 13 100 000 bales, a rise of 18% with respect to 1999. In June 2000, inventories stood at 2 900 000 bales; in December that number was 6 200 000 bales. The trend toward using large packaging sizes continued with 59% of the peat moss shipped in sizes larger than the traditional 170 dm^3 bag.

The United States continues to be the principal export market for New Brunswick peat producers. In 2000, about 7 500 000 bales were shipped to the USA and 3 000 000 bales were distributed in Canada. The Japanese market continued to favor peat of Canadian origin and accounted for 16% of New Brunswick's exports.

There are 33 Crown peat leases covering 35 peatlands; 31 peat leases were in production. Three additional operations are located entirely on private land. PaSi Peat Inc. ceased its operations on Peatland 324W.

ASB Greenworld Ltd.

COMPANY ASB Greenworld Ltd., 200, chemin Daigle, Pointe-Sapin (Nouveau-Brunswick) E9A 1T6. Telephone: (506) 876-3937. The Manager is Camille-Ernest Daigle.

RIGHTS ASB Greenworld Ltd. holds Peat Lease No. 19 (627 ha – Peatland 324E) under the *Quarriable Substances Act*, Chapter Q-1.1, S.N.B. 1991.

LOCATION Peatland 324E is in Pointe-Sapin, Kent County (Figure 9: 6).

HISTORY The company began site preparation in 1978. A peat lease was issued in 1982. In 1997, a plastic bag extruding and printing facility was added to the processing plant.

PRODUCTION The company produces milled peat (vacuum and Haku methods) and peat-based growing mixes.

Development The company continued to work toward the development of new peat-based growing mixes. An application for an eastward extension of the lease has been submitted.

Employees In 2000, 15 to 55 persons.

Beausejour Peat Moss Inc.

Company Beausejour Peat Moss Inc., C.P. 2006, Grand-Barachois (Nouveau-Brunswick) E4P 8V1. The President is Paul-Émile Leger. Telephone: (506) 532-1172.

Rights The company holds Peat Lease No. 37 (167 ha – Peatland 76) under the *Quarriable Substances Act*, Chapter Q-1.1 S.N.B. 1991.

Location This bog is approximately 5 km southeast of Shédiac, Westmorland County (Figure 9:7).

History In 1991, Beausejour Peat Moss Inc. applied for a Peat Exploration Licence for portions of Peatland 76 held by the Crown. During the same year, the company acquired freehold land in the northeastern sector of Peatland 76. In 1992, the licence application was dropped in favour of an Option. Peat extraction began on freehold land. In 1993, the company applied for and received a Peat Exploration Licence. A Peat Lease was issued for the Crown portion of the bog in 1994.

Production The company produces milled peat and peat-based compost products.

Development Development of the production area continued. A new processing plant was constructed.

Employees In 2000, 3 to 33 persons.

Compagnie de Tourbe Fafard ltée

Company Compagnie de Tourbe Fafard ltée / Fafard Peat Moss Co. Ltd., 422, chemin Pallot, Inkerman (Nouveau-Brunswick) E8P 1B5. Telephone: (506) 336-9715. The Manager is Denis Mallet.

Rights Compagnie de Tourbe Fafard ltée holds Peat Lease Nos. 4 (218 ha – Peatland 530), 5 (505 ha – Peatland 532), 6 (607 ha – Peatland 529), 22 (206 ha – Peatland 353), 25 (393 ha – Peatland 41) and 34 (398 ha – Peatland 40) under the *Quarriable Substances Act*, Chapter Q-1.1, S.N.B. 1991.

Location Peatland 530 is off Route 113 at Inkerman, Peatland 532 is 15 km south of Shippagan and Peatland 529 is 8 km southwest of Shippagan, all in Gloucester County (Figure 9:8a); Peatlands 40 and 41 are located near Birch Ridge, Kent County (Figure 9:8b); Peatland 353 is located 3 km southwest of Burnt Church, Northumberland County (Figure 9:8c).

History Compagnie de Tourbe Fafard ltée began operations in New Brunswick in 1942 by opening a bog near Shippagan (Peatland 530). New plants were opened in 1955 at Inkerman (Peatland 532) and in 1960 at Évangéline (Peatland 529). Initial production was block-cut peat but by 1973 the entire operation had changed to the production of milled peat. Since 1985, the production of peat mixes has become an important aspect of the New Brunswick operation. A perlite–vermiculite processing plant and a new peat-based growing mix plant were built at Peatland 532 in 1989. In 1998, the company completed a major corporate restructuring plan. Conrad Fafard, Inc. became a major shareholder of Québec-based Les Produits Horticoles Fafard ltée, which previously had controlling interest in la Compagnie de Tourbe Fafard ltée. A new company and wholly owned subsidiary of Conrad Fafard, Inc. named Fafard Products, Inc. was created, with head office in Inkerman, New Brunswick. That holding company is also majority shareholder of Compagnie de Tourbe Fafard ltée.

In 1987, Compagnie de Tourbe Fafard ltée acquired the operation of Les Équipements Tardif Inc. on Peatland 41 (Division Kent). Production from Peatland 41 had begun in 1984. In 1991, a peat lease was issued for adjacent Peatland 40. Production from that site began in 1999.

In 1988, Compagnie de Tourbe Fafard ltée acquired the assets of Burnt Church Peat Moss Co. Ltd. (Peatland 353 - Division Burnt Church). Production from the site began in 1991. A bagging plant was constructed in 1995.

PRODUCTION The company produces milled peat. Peat-based growing mixes are manufactured at the Inkerman plant (Peatland 532).

DEVELOPMENT Continued development of production fields at Burnt Church and Kent sites. Peatland restoration work is being done on abandoned parcels of land at the Évangéline peatland in cooperation with a Université Laval research group headed by Dr. Line Rochefort.

EMPLOYEES In 2000, 25 to 187 for the combined operations.

Good Earth Canada Ltd.

COMPANY Good Earth Canada Ltd., 5960 Broadway, Lancaster, N.Y. 14086, United States of America. Telephone: (716) 684-8111. The President is Guenther Burkhardt.

RIGHTS Good Earth Canada Ltd. holds Peat Lease No. 30 (734 ha – Peatland 338) under the *Quarriable Substances Act*, Chapter Q-1.1, S.N.B. 1991.

LOCATION Peatland 338 is in Escuminac, 50 km east of Miramichi, Northumberland County (Figure 9:9).

HISTORY The company was issued a peat lease in 1986 following the cancellation of Peat Lease No. 21 (Gulf Peat Co. Ltd.) in January 1986. Production began in 1987.

PRODUCTION The company produces milled peat and peat-based growing mixes.

DEVELOPMENT No new development to report.

EMPLOYEES In 2000, 2 to 22 persons.

Grande Anse Peat Moss Co. Ltd.

Company Grande Anse Peat Moss Co. Ltd., C.P. 90, 70, avenue de la Tourbe, Grande-Anse (Nouveau-Brunswick) E8N 2T9. Telephone: (506) 732-2854. The Manager is Patricia Whelton.

Rights Grande Anse Peat Moss Co. Ltd. holds Peat Lease No. 8 (166 ha) on Peatland 561, under the *Quarriable Substances Act*, Chapter Q-1.1, S.N.B. 1991.

Location Peatland 561 is in the village of Grande-Anse, Gloucester County (Figure 9:10).

History The company started a manual block-cut operation in 1961, which was mechanized in 1966. The conversion to a milled peat operation began in 1977. The plant was extensively modernized in 1991.

Production The company produces milled peat.

Development Sections of abandoned block-cut fields have been prepared for vacuum milled peat production.

Employees In 2000, 7 to 62 persons.

Heveco Ltd.

Company Heveco Ltd., 4534, Route 11, Tabusintac, (Nouveau-Brunswick) E9H 1J4. Telephone: (506) 779-9277. The Manager is Rolf Mecking.

Rights Heveco Ltd. holds Peat Lease Nos. 9 (1080 ha – Peatland 524) and 24 (174 ha – Peatland 522) under the *Quarriable Substances Act*, Chapter Q-1.1, S.N.B. 1991.

Location Peatland 524 is 2 km southeast of Tabusintac and Peatland 522 is located 2 km east of Brantville, Northumberland County (Figure 9:11).

History Incorporated in 1962, the company is the only major Canadian producer of block-cut peat. Since 1981, it also has produced milled peat. Production on Peatland 522 began in 1989. The plant was extensively modernized in 1995.

Production The company produces block-cut peat, milled peat, and peat-based growing mixes.

Development Some block-cut fields have been resurfaced to accommodate the milled peat operation. Opening of new production areas continued.

Employees In 2000, 26 to 100 persons.

La Mousse Acadienne (1979) ltée

Company La Mousse Acadienne (1979) ltée / Acadian Peat Moss (1979) Ltd., C.P. 2002, Lamèque (Nouveau-Brunswick) E8T 3N3. Telephone: (506) 344-2225. The President is Gilles Haché.

Rights La Mousse Acadienne (1979) ltée holds Peat Lease No. 13 (232 ha – Peatland 568) under the *Quarriable Substances Act*, Chapter Q-1.1, S.N.B. 1991. Three affiliated companies also hold peat leases: La Tourbe Chiasson ltée / Chiasson Peat Moss Ltd. (Peat Lease No. 23, 76 ha – Peatland 567); Tourbière Miramichi ltée / Miramichi Peat Ltd. (Peat Lease No. 31, 770 ha – Peatland 3); and La Tourbière Rivière de l'Anguille ltée / Eel River Peat Moss Ltd. (Peat Lease No. 36, 580 ha – Peatland 301).

Location Peatland 568 is adjacent to the Coteau Road on Lamèque Island, Gloucester County (Figure 9:12a); Peatland 567 is 3 km southeast of Petit-Shippagan, Gloucester County (Figure 9:12b); Peatland 3 is 6 km northeast of St.Margarets, Northumberland County (Figure 9:12c), and Peatland 301 is 8 km southwest of Eel River Bridge, Northumberland County (Figure 9:12d).

History Established in 1965, the company began production on Peatland 568 in 1966. Peat Lease No. 23 was obtained in 1982. Before 1987, all the production from Peatland 567 was processed at the facilities of La Mousse Acadienne (1979) ltée. A bagging plant was installed on Peatland 567 in 1987. Peat Lease No. 31 was obtained in 1988 and production from Peatland 3 began in 1989. Peat Lease No. 36, obtained in 1994, started to produce loose peat in 1999. The peat is trucked to the St. Margarets site for screening and bagging.

Production The company and its affiliates produce milled peat.

Development Continued field preparation on Lease 36.

Employees In 2000, 18 to 144 persons for the four combined operations.

La Tourbe de Pigeon Hill ltée

Company La Tourbe de Pigeon Hill ltée, C.P. 2067, 76 rue du Pêcheur, Lamèque (Nouveau-Brunswick) E8T 3N5. Telephone: (506) 344-5653. The President is Edmond Chiasson.

Rights La Tourbe de Pigeon Hill ltée holds Peat Lease No. 18 (234 ha – Peatland 569) under the *Quarriable Substances Act*, Chapter Q-1.1, S.N.B. 1991.

Location Peatland 569 is in Pigeon Hill on Lamèque Island, Gloucester County (Figure 9:13).

History A peat lease was issued in 1979.

Production The company produces milled peat.

Development Continued expansion of production fields. The processing plant was reconstructed and modernized.

EMPLOYEES In 2000, 1 to 19 persons.

La Tourbière de Petit-Shippagan

COMPANY La Tourbière de Petit-Shippagan, C.P. 2130, Lamèque (Nouveau-Brunswick) E8T 3N7. The contact person is François-Robert David, Director of Operations. Telephone: (506) 344-8064.

RIGHTS The company is operating on its own land.

LOCATION Peatland 579 is 7 km northeast of Lamèque, on the road to the Miscou bridge, Gloucester County (Figure 9:14).

HISTORY The project was registered with the Department of the Environment early in 1993 and received approval in July 1993. Production of peat began in 1994.

PRODUCTION The company produces milled peat and sells it unprocessed, in bulk.

DEVELOPMENT No new development.

EMPLOYEES In 2000, 1 to 7 persons.

La Tourbière du Centre de l'Île ltée

COMPANY La Tourbière du Centre de l'Île ltée, 264, rue du Pêcheur Nord, Lamèque (Nouveau-Brunswick) E8T 1K2. The contact person is Pierrette Savoie. Telephone: (506) 344-8236.

RIGHTS The company is operating on its own land.

LOCATION Peatland 580 is in the town of Lamèque, Gloucester County (Figure 9:15).

HISTORY The project was registered with the Department of the Environment in 1994 and received approval in November 1995. Production of peat began in 1996.

PRODUCTION The company produces milled peat and sells it unprocessed, in bulk.

DEVELOPMENT The company constructed a new sedimentation basin.

EMPLOYEES In 2000, 0 to 3 persons.

Le Groupe Berger ltée

COMPANY Le Groupe Berger ltée, 121, R.R. #1, St-Modeste (Québec) G0L 3W0. The President is Claudin Berger. Telephone: (418) 862-4462. The contact person is Andreas Avenriep. Telephone : (506) 228-9801.

Rights Le Groupe Berger ltée holds Peat Lease Nos. 29 (603 ha – Peatland 337), 33 (159 ha – Peatland 354) and 39 (261 ha Peatland – 324N) under the *Quarriable Substances Act*, Chapter Q-1.1, S.N.B. 1991.

Location Peatland 337 is 2 km north of St-Camille (Figure 9:16a), Peatland 354 is 35 km southwest of Bay du Vin (Figure 9: 16b), and Peatland 324N is immediately west of Peatland 337, across Highway 117 (Figure 9: 16a); all are in Northumberland County.

History In 1985, Le Groupe Berger ltée acquired a Peat Exploration Licence that was converted to Peat Lease No. 29 in 1986. Production on Peatland 337 began in 1987. In 1988, Le Groupe Berger ltée applied for and received a Peat Exploration Licence for Peatland 354. Peat Lease No. 33 was issued in 1991. Production from Peatland 354 began in 1992. On December 31, 1996, Berger Inc. transferred all of its assets to Le Groupe Berger ltée, a federally chartered company. In 1999, a perlite-expanding facility was constructed at the St-Camille site to supply the new peat mix plant, which became operational at the end of the same year.

Production The company produces milled peat and peat mixes.

Development The company continued to expand its production fields on Peatlands 337.

Employees In 2000, 55 to 150 persons.

Le Groupe Qualité Lamèque ltée

Company Le Groupe Qualité Lamèque ltée / Lameque Quality Group Ltd., 36, rue de la Tourbe, Lamèque (Nouveau-Brunswick) E8T 1A3. Telephone: (506) 344-2293. The President is Florent Chiasson.

Rights Le Groupe Qualité Lamèque ltée holds Peat Lease Nos. 7 (202 ha – Peatland 600), 14 (142 ha – Peatland 580), 16 (413 ha – Peatlands 516 and 517), 17 (115 ha – Peatland 576) and 28 (104 ha – Peatland 578) under the *Quarriable Substances Act*, Chapter Q-1.1, S.N.B. 1991.

Location Peatlands 580 and 578 are 4 km north of Lamèque (Figure 9:17a) and Peatland 576 is 4 km east of Haut-Lamèque (Figure 9:17b), Gloucester County; Peatlands 516 and 517 are 1.5 km east of Rivière-du-Portage, Northumberland County (Figure 9:17c); and Peatland 600 is on Pokesudie Island, Gloucester County (Figure 9:17d).

History Established in 1971, La Tourbière de Lamèque ltée became a division of Le Groupe Qualité Lamèque ltée (La Tourbière de Lamèque / Lameque Peat Moss) in 1989. Production on Peatland 578 began in 1989. In 1993, a fire destroyed the main processing plant in Lamèque. The plant became operational again during the summer of 1994. Production on Peatland 576 began in 1980.

La Tourbière de St-Raphaël ltée became a division of Le Groupe Qualité Lamèque ltée (La Tourbière de St-Raphaël / St. Raphaël Peat Moss Ltd.) in 1989.

Portage Peat Moss Ltd. had started commercial production from Peatlands 516 and 517 in 1972. In 1985, Les Produits Canadien Suprême ltée, a former affiliated company of Le Groupe Qualité Lamèque ltée, acquired the operation. The operation is now a division of Le Groupe Qualité Lamèque ltée (Les Produits Canadien Suprême / Canadian Supreme Products Ltd.). In 1989, the company suspended operations. A resource evaluation survey was completed in 1990. In 1991, production resumed in selected areas; the peat is trucked to the Lamèque facility for blending and processing.

In 1960, a peat lease was granted to Bushland Products Limited and in 1967 was transferred to Atkins & Durbrow (N.B.) Ltd. Following a disastrous fire in 1978, the plant was rebuilt and production resumed in late 1980. La Tourbière de Pokesudie ltée / Pokesudie Peat Moss Ltd., a former subsidiary company of Le Groupe Qualité Lamèque ltée, acquired the property in 1988. The company became a division of Le Groupe Qualité Lamèque ltée (La Tourbière de Pokesudie / Pokesudie Peat Moss) in 1989. Part of the mine site is now abandoned and has been reclaimed for agriculture (cranberry fields and associated water reservoir).

PRODUCTION The company produces milled peat and growing mixes.

DEVELOPMENT Expansion of production area and increasing activity level at the Rivière-du-Portage site. In January, exceptionally high tides brought salt water on production fields at the Pokesudie peatland resulting in significant loss of production potential at that site.

EMPLOYEES In 2000, 33 to 122 persons.

Malpec Peat Moss Ltd.

COMPANY Malpec Peat Moss Ltd., C.P. 118, Rexton (Nouveau-Brunswick) E0A 2L0. Telephone: (506) 523-9161. The Manager is Joe Curry.

RIGHTS Malpec Peat Moss Ltd. holds Peat Lease No. 20 (499 ha – Peatland 213) under the *Quarriable Substances Act*, Chapter Q-1.1, S.N.B. 1991.

LOCATION Peatland 213 is 3 km west of Rexton, Kent County (Figure 9:18).

HISTORY The company is affiliated with Southern Importers, Inc., Greensboro, North Carolina, United States of America. It was issued a peat lease in 1982 and began production of milled peat in 1985. In 1995, the lease was expanded by about 250 ha. In the spring of 1997, a fire destroyed the bagging plant. The plant was rebuilt and full production resumed in 1998.

PRODUCTION The company produces milled peat.

DEVELOPMENT Field preparation in the northern part of the lease.

EMPLOYEES In 2000, 6 to 44 persons.

Premier Horticulture (Premier Tech ltée)

COMPANY A subsidiary of Entreprises Premier CDN ltée, 1, ave Premier, C.P. 2600, Rivière-du-Loup (Québec) G5R 4C9. The contact person is Michel Vachon, Director of Operations. Telephone: (418) 862-6356.

RIGHTS Peat Leases No. 35 (769 ha – Peatland 16) and No. 38 (199 ha – Peatland 14), under the *Quarriable Substances Act*, Chapter Q-1.1, S.N.B. 1991.

LOCATION Peatland 16 is on Highway 126, 3 km south of Rogersville in Kent County (Figure 9:19a). Peatland 14 is located 30 km west of Rogersville in Northumberland County (Figure 9:19b).

HISTORY Entreprises Premier CDN ltée applied for a Peat Exploration Licence in 1991 and a licence was issued in that same year. In 1992, a Peat Lease was issued to the newly formed subsidiary company. Initial production of peat began in 1994. A bagging plant was constructed in 1995. In 1999, Entreprises Premier CDN ltée changed its corporate designation to Premier Tech ltée with Premier Horticulture as one of its business divisions. The company moved on the Toronto Stock Exchange under the PTLA symbol.

PRODUCTION The company produces milled peat.

DEVELOPMENT Development of production fields continued on peatlands 16 and 14.

EMPLOYEES In 2000, 1 to 32 persons.

Sun Gro Horticulture Canada Ltd.

COMPANY Sun Gro Horticulture Canada Ltd., 124, chemin de la Tourbe, Maisonnette (Nouveau-Brunswick) E8N 1P8. Telephone: (506) 727-3428. The Manager is Clarence Breau.

RIGHTS Sun Gro Horticulture Canada Ltd. holds Peat Lease Nos. 10 (1390.6 ha – Peatlands 591 and 592) and 12 (396 ha – Peatland 562) under the *Quarriable Substances Act*, Chapter Q-1.1, S.N.B. 1991.

LOCATION Peatlands 591 and 592 are 3 km southeast of Lamèque and Peatland 562 is 6 km west of Maisonnette, all in Gloucester County (Figure 9:20).

HISTORY In 1964, Western Peat Company Ltd., a Canadian company owned by Red Wing Peat Corporation (USA), established a base of operations at Maisonnette (Peatland 562). In 1970, Red Wing Peat Corporation purchased Atlantic Peat Moss Co. Ltd. at Shippagan (Peatlands 591, 592 and 527). Atlantic Peat Moss Co. Ltd. had produced from Peatland 527 (1953–1971) and from Peatland 591 since 1952.

In 1974, S.B. McLaughlin Associates Limited of Toronto, Ontario, purchased the holdings of the major shareholder, Red Wing Peat Corporation, and assumed control. This was followed by the combination of the business operations of Western Peat Company Ltd. and Atlantic Peat Moss Co. Ltd. into Western Peat Moss Limited.

In 1980, Fisons, a British company, acquired a 50% interest in Western Peat Moss Limited. The joint venture company was renamed Fisons Western Peat Moss Limited and then changed to Fisons Western Corporation in January 1982, when Fisons acquired the remaining McLaughlin interests. Production from Peatland 527 ceased in 1971 due to fire hazard to the town of Shippagan and the site was converted to Peat Lease No. 26 in 1984. The new plant on Lamèque Island (Peatland 591) opened in 1981. The company changed its corporate name to Fisons Horticulture Inc. in 1989.

In 1993, Fisons Horticulture Inc. was acquired by Sun Gro Horticulture Inc. The New Brunswick operation is managed by Sun Gro Horticulture Canada Ltd.

Former Peat Lease No. 26 was terminated in 1994 after appropriate restoration work had been completed.

PRODUCTION The company produces milled peat and peat-based growing mixes.

DEVELOPMENT Continued expansion of production fields on Peatland 591. Peatland restoration work is being done on abandoned parcels of land at the Lamèque site in cooperation with a Université Laval research group headed by Dr. Line Rochefort.

EMPLOYEES In 2000, 46 to 146 persons.

Theriault & Hachey Peat Moss Ltd.

COMPANY Theriault & Hachey Peat Moss Ltd., 201, chemin Theriault-Hachey, Baie-Sainte-Anne (Nouveau-Brunswick) E9A 1N7. Telephone: (506) 228-4530. Elphège Theriault is President. The Chief Executive Officer is Gary Williston.

RIGHTS Theriault & Hachey Peat Moss Ltd. holds Peat Lease No. 11 (482 ha – Peatland 324W) and Peat Lease No. 27 (125 ha – Peatland 302A) under the *Quarriable Substances Act*, Chapter Q-1.1, S.N.B. 1991.

LOCATION Peatlands 324W and 302A are 6 km south of Eel River Bridge, Northumberland County (Figure 9:21).

HISTORY The company was formed in 1963 but block-cut peat had been produced from the site since 1961. In 1977, the block-cutting operation was converted to a milled peat operation. The company acquired a peat lease on Peatland 302A in 1985. Production on Peatland 302A began in 1990. A new processing plant was built in 1994.

PRODUCTION The company produces milled peat.

DEVELOPMENT New fields continue to be opened on Peatland 302A. Some block cut fields on Peatland 324W are being reconverted to vacuum milled peat production.

EMPLOYEES In 2000, 10 to 75 persons.

Tourbière 2000 inc.

COMPANY Tourbière 2000 inc., 2223 Route 350, Maltampec (Nouveau-Brunswick) E8P 1N4. Telephone: (506) 727-5251. The President is Adrien Landry.

RIGHTS. The company is operating on its own land.

LOCATION Peatland 950 is located 5 km east of Paquetville, north of highway 350, Gloucester County (Figure 9:22).

HISTORY The project was registered with the Department of Environment and Local Government in September 1999 and received approval in February 2000.

PRODUCTION The company intends to produce milled peat and to sell it unprocessed, in bulk.

DEVELOPMENT The company constructed an access road and began site preparation in the fall.

EMPLOYEES In 2000, 1 to 3 persons.

Tourbière L.M. ltée

COMPANY Tourbière L.M. ltée, 1081, Route 365, Gauvreau (Nouveau-Brunswick). Telephone: (506) 538-2632. The President is Laurie Chiasson.

RIGHTS The company is operating on its own land.

LOCATION Peatland 531A is located 3 km west of Haut-Pokemouche, Gloucester County (Figure 9:23).

HISTORY The project was registered with the Department of the Environment in July 2000 and received approval in September of the same year.

PRODUCTION The company intends to produce milled peat and to sell it unprocessed, in bulk.

DEVELOPMENT The company began site preparation in the fall.

EMPLOYEES In 2000, 1 to 3 persons.

Tourbière Tracadie ltée

COMPANY Tourbière Tracadie ltée (formerly known as *Les Entreprises Jean-Eudes Martin et Fils ltée*) 4092, boul. des Fondateurs, Saint-Isidore (Nouveau-Brunswick) E8M 1G3. The President is Sylvie Martin. Telephone: (506) 358-9800.

Rights The company operates on its own land.

Location Peatland 541 is located in Tracadie-Sheila, Gloucester County, along Highway 11 (Figure 9:24).

History The project was registered with the Department of the Environment early in 1997 and received approval in June 1997. Production of peat began in 1997.

Production The company produces milled peat and sells it unprocessed, in bulk.

Development The company continued to develop its production area.

Employees In 2000, 1 to 5 persons.

Potash, Salt

Following its discovery in 1971, potash rapidly became a major contributor to the value of industrial mineral production in New Brunswick. In terms of its impact on the total value of minerals produced in the Province, potash remains second only to zinc. Until 1996, New Brunswick potash producers accounted for roughly 10% of Canada's productive capacity and between 10 and 15% of its annual production.

New Brunswick's two world-class potash mining and processing facilities (respectively, the Potash Corporation of Saskatchewan Inc. New Brunswick Division and Cassidy Lake Division [formerly the Potacan Mining Company]) are situated in the southeastern part of the Province near the Town of Sussex. The Cassidy Lake Division presently provides the company's custom and selected value-added processing while the New Brunswick Division functions as an integrated mine/mill facility.

Potash Corporation of Saskatchewan Inc. (Cassidy Lake Division)

Company Potash Corporation of Saskatchewan Inc. (Cassidy Lake Division) [PCS (Cassidy Lake)], Contact is Raoul Gauthier, General Manager, Potash Corporation of Saskatchewan Inc. (Cassidy Lake Division). Telephone: (506) 433-5445. Address is P.O. Box 1489, Sussex, New Brunswick E4E 5L2. Site Superintendent is Wally Farrah. Telephone: (506) 839-2146. Corporate office: Potash Corporation of Saskatchewan Inc., 122 – 1st Avenue S., Suite 500, Saskatoon, Saskatchewan S7K 7G3. Website: *www. potashcorp. com.*

Rights Potash Corporation of Saskatchewan Inc. (Cassidy Lake Division) holds a Potash Agreement (858.7 ha), under Section 25(2) of the *Mining Act*, Chapter M-14.1, S.N.B. 1985.

Location The PCS(Cassidy Lake) processing operation (Figure 9: 25) is situated about 20 km southwest of Sussex, Kings County (NTS 21 H/12E).

History Potash and salt were discovered in the Salt Springs area by the New Brunswick Department of Natural Resources in 1973. Subsequent exploration and development rights to a 120 km^2 reservation area were granted to International Minerals and Chemical Corporation (IMC). Full-scale exploration (22 drill holes) began in 1975, and was successful in confirming a significant ore body. Despite extremely encouraging results from the drilling program, IMC sold the property to Denison Mines Limited of Toronto in the latter part of 1978. Construction of a 5-m-diameter exploration mine shaft was commenced in September, 1979, and reached a target depth of 835 m by 1982.

In December 1980, Denison Mines Limited assigned a 40% interest in the property to Potash Company of Canada Limited (Potacan). Potacan, owned jointly by Entreprise Minière et Chimique, and Kali und Salz AG, handled potash sales while Denison was the overall development manager.

A feasibility study completed in 1982 resulted in a production decision announcement on February 7, 1983. Work on the No. 2 shaft, the production shaft, commenced in 1983, along with continued underground development and the construction of the surface infrastructure related to the mill facility, tailings storage, and brine disposal. By July, 1985, all pre-production work was completed and the first shipment of potash was destined for Colombia on September 17, 1985.

Because of financial difficulties, Denison sold its interest in the property to its Potacan partners in 1991 and the name was subsequently changed to the Potacan Mining Company (PMC).

Throughout most of its 12 years of operation, Potacan generally maintained production levels greater than 75 % of its rated 1 300 000 product tonne capacity and had established itself as the Province's largest potash mining and milling facility. In the spring of 1997, water inflow occurred in the underground. Following unsuccessful attempts to reduce the flow to a manageable level, PMC's parent company, the Potash Company of Canada, announced the permanent suspension of operations at the Cassidy Lake mine about 6 months later. A plan was implemented to dispose of all surface tailings and carry out remedial site work. This closure reduced the Province's productive capacity by almost two thirds and resulted in the loss of hundreds of jobs.

Early in 1998, the former Potacan operation was purchased by the Potash Corporation of Saskatchewan Inc. The facility, now called *Potash Corporation of Saskatchewan Inc. (Cassidy Lake Division)* utilizes the existing processing facility and related infrastructure to upgrade standard-grade potash imported from company operations in western Canada. The result is a higher-value granular product supplied to markets in eastern Canada and the United States. The Cassidy Lake operation has an annual milling capacity of 1 300 000 t and a compaction capacity of 1 000 000 t of granular product. The operation is linked by rail to the port of Saint John, 60 km to the west, a critical marketing advantage in the efficient global distribution of this important commodity.

RESERVES AND GRADE Not available

PRODUCTION Production ceased in 1997. The Potash Corporation of Saskatchewan Inc. operates a custom processing facility on the property, which has an annual compaction capacity of 1 000 000 t of granular potash product. In 2000, the company's Cassidy Lake operation reported a 17% increase in its output of granular product over 1999, compacting 230 000 t of standard grade product from company operations in Rocanville, Sakatchewan (PotashCorp, 2000, Annual Report, p. 8). The market for most of this material is the eastern United States and Canada.

EMPLOYEES 31 persons in 2000

DEVELOPMENT In March 1998, the Potash Corporation of Saskatchewan Inc. purchased all outstanding shares from Potacan's holding company, the Potash Company of Canada Limited (an equal partnership between Kali und Salz of Germany and Entreprise Minière et Chemique of France). PCS is using the former Potacan mill to upgrade standard product from its Rocanville operation in western Canada into a higher-value granular product (annual granular capacity of 1 000 000 t). A new and efficient rail car unloading facility has been installed to accommodate the efficient off-loading of standard grade product from Saskatchewan.

Potash Corporation of Saskatchewan Inc. (New Brunswick Division)

COMPANY Potash Corporation of Saskatchewan Inc. (New Brunswick Division) [PCS(NB)], P.O. Box 5039, Sussex, New Brunswick E4E 5L2. Telephone: (506) 433-5445. The General Manager is Raoul Gauthier. Corporate office: Potash Corporation of Saskatchewan Inc., 122 – 1st Avenue S., Suite 500, Saskatoon, Saskatchewan S7K 7G3. Website: *www. potashcorp. com.*

RIGHTS Potash Corporation of Saskatchewan Inc. (New Brunswick Division) holds a Potash Agreement (19165.5 ha), under Section 25(2) of the *Mining Act*, Chapter M-14.1, S.N.B. 1985.

LOCATION The PCS(NB) mine/mill facility (Figure 9: 26) is on the north side of Highway 2, about 5 km east of Sussex, Kings County (NTS 21 H/11W, 21 H/14W).

HISTORY Following the discovery of potash in the Plumweseep–Penobsquis area by the New Brunswick Department of Natural Resources in 1971, exploration and development rights covering a 360 km² reservation area were granted to the Potash Company of America in 1973. After a comprehensive exploration program and feasibility study, the company proceeded with the construction of a 5-m-diameter exploratory mine shaft in the spring of 1978. The exploration shaft was completed in April and underground exploration was completed in October of 1980. On October 27, 1980, the Potash Company of America announced that it was proceeding to production with a mine capacity of 900 000 t/a although initial capacity would be 630 000 t/a.

Mine development, mill construction, and the Courtenay Bay potash shipping terminal in Saint John were completed in 1983. The first potash was produced from the mill on July 17, 1983. The first shipment of potash through the port facility in Saint John took place early in 1984.

After purchasing PCA early in 1986, Rio Algom Limited spent more than $30 000 000 on improvements designed to bring the Sussex mine up to its rated capacity of 635 000 product tonnes per year by April of 1987.

In 1993, the assets of Potash Company of America (a Division of Rio Algom Limited), including the New Brunswick mine and the Saint John port facility, were acquired by Potash Corporation of Saskatchewan Inc.

RESERVES AND GRADE On the basis of geophysics, surface and underground exploration drilling and mine development, PCS(NB) believes the mine has a proven reserve of 48 000 000 t of recoverable ore and 16 600 000 t of estimated finished product. Based on these proven reserve estimates, the operation has a reserve (proven) life of at least 21 years at current rates of productive capacity (785 000 t of KCl product in 1999) and current technology (Source: PCS 10-K Form filed 3/28/1999). Probable reserves have been reported at 200 000 000 t with 72 000 000 t of estimated finished product. Combined proven and probable reserves indicate a reserve life of a century at full current productive capacity and established technology (PCS 10-K Form filed 3/28/2000, p. 5)

PRODUCTION Potash and salt production commenced in 1983. PCS(NB) has an annual production capacity of 785 000 t KCl (PotashCorp, 2000 Annual Report, p. 8.). In 2000, a record 800 000 t of KCl product was produced, an 8.6% increase over 1999 (PotashCorp, 2000 Annual Report, p. 8.). Potash shipments from the Port of Saint John were reported at 933 000 t, a 15 % decrease over 1999 tonnage figures (Saint John Port Authority, 2000 Annual Report, p.3).

In conjunction with its potash mining operation PCS(NB) also mines salt. In 2000, PCS reported salt production of 661 000 t (PotashCorp, 2000 Annual Report, p. 8) with most coming from its New Brunswick opertaion. Some is consumed regionally; however, most is trucked to and exported from the Port of Saint John. The material is sold exclusively to the salt division of Cargill Incorporated. Although production of this mineral commodity has expanded over the last few years, 2000 witnessed a slight decline in shipments out of the Saint John port facility for the third straight year. Salt shipments through the port were reported to be 152 000 t in 2000 compared to 157 000 t in 1999, 192 000 t in 1998 and 287 000 t in 1997.

EMPLOYEES Average of 419 persons for 2000.

DEVELOPMENT In the late spring of 1998, a small brine inflow was discovered in a section of the mine. Since its detection, PCS(NB) officials have been vigilant in their analysis of the situation. The inflow continued to be monitored and controlled throughout 2000 (PotashCorp, 2000 Annual Report, p. 9).

Late in 2000, natural gas was discovered near the Sussex mine site of Potash Corporation of Saskatchewan Inc. (New Brunswick Division). The "McCully Field" is being further evaluated by PCS(NB) and its joint venture partner, Corridor Resources Inc.

Limestone, Dolomite, Marl

The upward production trend established in recent years at New Brunswick's limestone and dolomite operations continued throughout 2000. A significant proportion of this recent production has been sustained by the aggregate demand of new highway construction and related infrastructure in southern New Brunswick. Production is expected to level off to 700 000 and 900 000 t upon completion of several projects over the next few years. In 2000, limestone and dolomitic limestone were processed from five operations: Brookville Manufacturing of Saint John; Elmtree Resources Ltd. near Bathurst; Graymont (NB) Inc. (formerly Havelock Lime, a Division of Goldcorp Inc.) of Havelock; Lafarge Canada Inc. of Havelock; and Upper Kent Lime Works, north of Bristol (Figure 9: 27–31). Another limestone operation, Kingsway Materials Ltd., situated 25 to 30 km east of Saint John (Figure 9: 32), was established in 2000 although details related to production and related activities is not known (see company website, *www.atyp.com/kingsway/index.html* for more information).

The Province's limestone industry manufactures a range of chemical and pulverized products featuring agricultural, calcined and hydrated lime, flue gas desulphurization limestone as well as aggregate. In recent years there has been considerable research targeted at developing new value-added lime and limestone product lines.

Brookville Manufacturing Company

COMPANY Brookville Manufacturing Company, P.O. Box 2332, Station C, Saint John, New Brunswick E2L 3V6. Telephone: (506) 633-1200. The company's owner and General Manager is Malcolm Hoar.

RIGHTS Mineral rights through Original King's Land Grant.

LOCATION Brookville, East Saint John, Saint John County (Figure 9: 27). The quarry and crushing operations are between Highway 1 (Sussex–Saint John Highway) and Highway 100 (Rothesay Highway), approximately 2 km east of their junction. Access to the quarry is via the Rothesay Highway (NTS 21 H/5).

HISTORY The limestone/dolomite quarry and processing facility established at Brookville Manufacturing has a history of continuous operation for over 75 years (1920). The privately owned company primarily produces pulverized limestone and dolomitic limestone for the agricultural industry, a wide range of construction aggregate materials and other products.

Brookville, originally owned and operated by H.G.S. Adams, remained a family business until 1972 when it was purchased by Moosehead Breweries of Saint John. Moosehead succeeded in running the business almost 25 years before selling to its present owner and former Brookville employee, Malcolm Hoar, in 1994–95.

RESERVES AND GRADE Although resource estimates of limestone and dolomite at Brookville are not publicly available it appears there is an adequate stone supply for many years depending on its quality and availability at present levels of production. In 1998, a company official reported "about 70 years left in the life of the dolomite limestone quarry" (Heavy Construction News, June, 1998).

The calcium and magnesium content of the stone varies throughout the quarry, from areas of high-calcium limestone to areas of high-magnesium dolomite. Most production is centered in the more dolomitic areas where grades fluctuate from 40 to 45% $MgCO_3$.

PRODUCTION The company, which quarries and processes 200 000 to 300 000 t of limestone/dolomite each year, produces dolomitic agricultural lime, a wide range of aggregate for construction and other related purposes. Apart from New Brunswick, the company has marketed materials in Nova Scotia, Prince Edward Island, and the New England States.

Brookville has a long-standing history of supplying aggregate to the concrete industry. In 1998, the company was chosen to supply concrete aggregate for 15 000 m of pre-stressed concrete girders to be used on a major 195 km highway construction project between Fredericton and Moncton in southern New Brunswick. The company maintains a stockpile of construction and agricultural materials in excess of 120 000 t, which are utilized in the manufacture of more than 40 different products.

EMPLOYEES Average of 23 persons in 2000.

DEVELOPMENT Similar to other limestone operations in New Brunswick, Brookville has been considering various options directed at expanding its product line into several new value-added agricultural and related products. The company continues to be a major supplier of aggregate material in southern New Brunswick.

Elmtree Resources Ltd.
(Sormany Quarry)

COMPANY Elmtree Resources Ltd., P.O. Box 665, Bathurst, New Brunswick E2A 3Z6. Telephone: (506) 546-6382. The Executive Officer and President is A. Buzas, and the Manager and Vice-President is M. Buzas.

RIGHTS Elmtree Resources Ltd. holds Quarry Lease No. 27 (84.3 ha) under the *Quarriable Substances Act*, Chapter Q-1, R.S.N.B. 1968 as well as Mining Lease 247 (161.1 ha; Armstrong Brook), Mining Lease 248 (171.3 ha; Sormany) and Mining Lease 249 (245.94 ha; Elmtree) and several claim blocks under the *Mining Act*, Chapter M-14.1, R.S.N.B. 1986.

LOCATION Elmtree operates a quarry and adjacent processing facility several kilometres west of Sormany, in northern New Brunswick (Figure 9: 28). The operation is about 30 km west of Bathurst, and adjacent to the Millstream River (NTS 21 O/9).

HISTORY Although the limestone near Sormany was mapped by J.L. Davies (Geological Surveys Branch) in 1959, it was not until 1982 that Elmtree Resources Ltd. mapped and sampled the deposit in detail. Two holes were drilled to further test the extent and grade continuity of the limestone at depth. Results were encouraging enough for the company to eventually proceed with quarry development and establish an on-site processing facility in the early 1990s.

In 1992, quarry operations shifted from the company's original Elmtree site near Petit Rocher to the present Sormany location, about 34 km to the southwest. All operations are consolidated at the Sormany site, with Elmtree's former location serving as a storage and distribution point for selected limestone products.

RESERVES AND GRADES Initial exploration (early 1980s) indicated possible reserves in excess of 8 000 000 t of limestone. Recent and more detailed reserve estimates are not publicly available.

PRODUCTION Between 40 000 and 50 000 t of flux-grade material is supplied annually to the nearby smelter at Belledune. In addition to this and other products, over 100 000 t of (>90% $CaCO_3$) limestone is supplied annually as a flue-gas desulphurization (FGD) agent to two hydrocarbon-fired power plants in northern New Brunswick. One facility is situated nearby (20 km) at Belledune while the other is at Dalhousie, 50 km north of the Elmtree operation.

DEVELOPMENT A new quarry site was established a few hundred metres west of the original Sormany quarry in 1998. In 1999, both quarries were connected facilitating improved extraction efficiencies. The company is also considering development options on its Armstrong Brook dolomite property about 25 km west of Bathurst and plans to extract some stone for testing at its Sormany-based processing facility. The search for additional limestone and dolomite resources in the region resulted in several claims being staked to the east of the company's Sormany processing facility. No exploration work was reported in 2000.

EMPLOYEES Average of 15 persons in 2000.

Graymont (NB) Inc.
(Havelock Quarry)

COMPANY Graymont (NB) Inc., 4634 Route 880, Havelock, New Brunswick E4Z 5K8. Telephone: (506) 534-2311. The General Manager is Frank Derrah.

RIGHTS Graymont (NB) Inc. holds Mining Lease 243 (355.0 ha) and Mining Lease 244 (182.4 ha), under the *Mining Act*, Chapter M-14.1, S.N.B. 1985. Lease 243 includes the operating quarry at Samphill and Lease 244 includes the plant. The company also holds several claim blocks in the Havelock, Sussex and Canaan areas.

LOCATION The company operates a quarry at Samp Hill (Figure 9: 29), about 5 km west of Havelock. A processing facility is situated less than 1 km east of the Village (NTS 21H/13W).

HISTORY Graymont (NB) Inc.[formerly Havelock Lime (a division of Goldcorp Inc.) and formerly Havelock Lime Works Ltd.], has been quarrying in the area since 1938. The original company was incorporated in 1964, and in 1970 a subsidiary company, Havelock Processing Ltd., was formed to manage the manufacturing of quick and hydrated lime. In 1984, Dickenson Mines Ltd. purchased 60% interest in the Havelock group of companies. In 1987, the remaining 40% was acquired.

In 1989, Goldcorp Inc. gained control of Dickenson Mines and it's affiliated companies. Fives years later (1994) the assets of Goldcorp, Dickenson, and two other companies were reorganized into a new corporate structure and at that time Havelock Lime's company name was modified to reflect the new corporate identity – Havelock Lime (a division of Goldcorp Inc.).

Since Dickenson's purchase of Havelock's assets, several improvements to the facility have been realized. Some of these have included the construction of a 330 t/d annular-shaft kiln (completed in 1989) to improve fuel economy, provide increased production capacity and provide long-term market competitiveness. A new 10 t/h hydrator improved production efficiency and in 1991, a wash plant was commissioned, providing better-quality stone feed to the kiln.

In 1996, Havelock Lime's reputation as a marketer of quality lime products was enhanced by its qualification for the internationally recognized ISO 9002 quality assurance accreditation.

To assist in funding requirements pertaining to the redevelopment of its Red Lake gold mine in northwestern Ontario, Goldcorp announced late in 1999 that it was selling the Havelock Lime operation. The sale was completed on December 31, 1999 for a reported net proceeds of US$ 20 588 000 (Cdn$29 650 000) to Graymont Ltd. of Vancouver, British Columbia (Heavy Construction News, June 1998). Graymont is a privately owned Canadian corporation that maintains the position of the third largest lime producing company in North America. The Havelock facility, renamed Graymont (NB) Inc. is to be closely associated with Graymont's three lime plants and associated quarries in Quebec [Graymont(QC) Inc].

RESERVES AND GRADE Limestone requirements are partially supplied from the company's Samphill quarry with up to 400 000 t purchased annually from the neighboring Lafarge Canada Inc. quarry under the terms of a negotiated multiyear limestone supply agreement. In its 1997 Annual Report, Goldcorp Inc., Havelock's former parent company indicated that at the current rate of production, Havelock Lime had limestone reserves to last approximately 30 years. Although not fully delineated, total reserves from company holdings in the Havelock area were estimated at 8 300 000 tons (Goldcorp Inc., Annual Report, 1997).

PRODUCTION The company processes between 300 000 and 400 000 t of limestone annually. Chemical process stone (for use as flux in nonferrous smelters, the glass industry, pulp and paper mills, and fibreglass), pulverized stone (for use in dusting mines and for agricultural purposes), poultry grit, and crushed stone (for use as concrete aggregate and for general construction) are currently produced. Havelock's lime and related limestone product revenues for 1999 were reported at just over $12 000 000, representing a slight increase over 1998 largely due to significant growth in aggregate sales and strong sales in calcined and hydrated lime (Management's discussion and analysis: 1999 Consolidated financial statements, Goldcorp Inc.). Havelock [Graymont (NB) Inc,] remains the only source of quick and hydrated lime in the Maritimes.

EMPLOYEES An average of 52 persons in 2000.

DEVELOPMENT Over the last few years, Havelock Lime [Graymont (NB) Inc.] has been consolidating and extending reserves of high-calcium limestone in the Havelock area. Proposed quarry expansions continued in 1999 with preliminary planning and predevelopment work undertaken at two locations. Development activity at Havelock's Samphill quarry will result in the extraction of over 1 700 000 t of construction aggregate over the next two years. Under the terms of a special agreement, the Maritime Road Development Corporation is removing and processing low-chemical-grade limestone and related overburden material from the Samphill quarry site to meet the strategic construction material requirements for the Fredericton to Moncton highway project in this part of New Brunswick. Excavation of this material will assist in the economic recovery of higher value, underlying reserves of steeply dipping, high-calcium limestone, thus extending life of the quarry by several years.

Havelock has been conducting considerable research targeted at developing new value-added lime and limestone product lines. Higher-value new products such as Hydra Lime+ (comprising hydrated lime, gypsum and magnesium limestone) should allow the company to penetrate markets not previously accessible with traditional agricultural lime products. In addition, the company is investigating stone at new test quarry site for its suitability as a raw material for the manufacture of precipitated calcium carbonate (PCC) used extensively as filler and coating in the pulp and paper industry. A favorable outcome of testing, market research and other related issues could result in a considerable expansion to Havelock's existing manufacturing facility in the near future. In the meantime, various projects are underway to improve processing efficiencies at the lime manufacturing plant.

Lafarge Canada Inc.
(Havelock Quarry and Cement Plant)

COMPANY Lafarge Canada Inc. The plant address is 4877, Route 880, Havelock, New Brunswick E4Z 5C1. Telephone: (506) 534-2301. The Manager is Dave Clark. Website: *www. lafargecorp.com*

RIGHTS Lafarge Canada Inc. holds Mining Lease 245 (632.5 ha), which includes the existing plant and quarries, and Mining Lease under the *Mining Act*, Chapter M-14.1, S.N.B. 1985. The company also holds mineral claims on a limestone and a gypsum property near Havelock and Petitcodiac, respectively.

LOCATION The limestone quarries and cement plant (Figure 9: 30) are adjacent to Highway 880, about 5 km east of Havelock, Westmorland County (NTS 21 I/3W).

HISTORY Limestone quarries near the plant have been supplying raw material for the manufacture of cement since 1952. After 1982, production of cement from local raw materials was limited to fulfilling market requirements for oil well and other specialty cements. The plant was maintained as a grinding operation for imported Nova Scotia clinker until 1987 when the company closed its cement production facility; however, it continues to quarry stone used for other purposes. The plant property now serves only as a distribution point for products from another company operation in the Maritimes.

The McGee quarry was opened in 1986 just north of Highway 880, less than 1 km east of the plant. This property, partially investigated in 1976, was known to contain extensive reserves of high-calcium limestone. A drilling program was undertaken in 1985 to verify the quality and extent of the deposit prior to the establishment of the new quarry site.

Since opening the McGee quarry site, Lafarge has supplied limestone to an unrelated lime plant operating at Havelock. The operation has also supplied limestone from other quarry locations on its property for the manufacture of various specialty cement products at a company cement plant in Nova Scotia. Aggregate material has been supplied to regional operations of Lafarge Construction Materials (i.e., ready-mix cement plants) on an as-required basis for several years. The company continues with an impressive reclamation program at former quarry locations.

RESERVES AND GRADE Potential medium- to high-grade limestone (i.e., 50–53% CaO) resources are estimated to be fairly extensive on properties held under mining lease by Lafarge Canada Inc., although no specific values are publicly available. In addition, the company maintains a 288 ha claim block in the Springhill area several kilometers southwest of the former cement plant and its adjacent quarries.

PRODUCTION Historically, Lafarge has produced up to 400 000 t of limestone annually, primarily for use in cement manufacturing. However, since the closure of its plant, 15 years ago, stone specifically quarried for cement production has been minimal. Despite the closure of its Havelock cement operation, Lafarge has continued to produce stone mostly from its McGee quarry, selling 300 000 to 400 000 t annually to Graymont (NB) Inc. [formerly Havelock Lime (a division of Goldcorp Inc.)]. Intermittent production in the range of a few tens of thousands of tonnes a year is shipped on-demand to Lafarge's Nova Scotia cement manufacturing operation at Brookfield, company ready-mix operations in Sussex and Moncton and other local markets.

EMPLOYEES Average of 3 persons in 2000.

DEVELOPMENT. Lafarge Canada Inc.'s Havelock operation continued to supply limestone from its quarries in 2000. In addition to this limestone production, the company processed and stored 50 000 to 60 000 t of magnesium limestone for Graymont (NB) Inc. from that company's Samphill quarry, 5 km west of Havelock.

An agreement was arranged with Miller Infrastructures Ltd. to supply that company with 200 000 to 300 000 t of asphalt aggregate for the new Fredericton to Moncton four-lane highway.

Completing most its quarry reclamation work in 1999, Lafarge supervised reclamation work in the McGee quarry, undertaken on the company's behalf by Graymont (NB) Inc.

Upper Kent Lime Works Ltd.

COMPANY Upper Kent Lime Works Ltd., R.R. 3, Bath, New Brunswick E0J 1E0. Telephone: (506) 278-5359. Contact person is Douglas Lloyd.

RIGHTS Upper Kent Lime Works Ltd. holds Mining Lease 242 (16.2 ha), under the *Mining Act*, Chapter M-14.1, S.N.B. 1985.

LOCATION This marl deposit (Figure 9: 31) is in the bottom of a partially drained lake at Maplehurst, 15 km north of the Village of Bath (NTS 21 J/12).

HISTORY The deposit has been worked since the late 1950s and was acquired by the present owners in 1973.

RESERVES AND GRADE Less than 30 000 t of marl ranging between 85% and 95% $CaCO_3$ remain at this location.

PRODUCTION Marl is extracted from a shallow lake bottom using a dragline, spread on the adjacent hillside to dry, and stockpiled. It is then screened to remove pebbles, twigs, etc., and trucked to local farmers for use on potato fields. The main operating period is late April to June. An additional two- to three-week period of operation typically occurs in the fall to stockpile material. Annual sales vary but are generally less than 2000 t.

EMPLOYEES 3–4 persons (seasonal)

DEVELOPMENT Continued operation.

Silica

Atlantic Silica Inc.

COMPANY Atlantic Silica Inc., 4 Osborne Road, Poodiac, New Brunswick E4E 5K5. Telephone: (506) 433-5890. Fax: (506) 433-4619. President and General Manager is Robert Pickett.

RIGHTS Atlantic Silica Inc. (formerly Sussex Silica Inc.) holds Mining Lease 241 (599.8 ha), under the *Mining Act*, Chapter M-14.1, S.N.B. 1985.

LOCATION This deposit of unconsolidated silica sand and pebbles (Figure 9: 33) is about 16 km southwest of Sussex, immediately northeast of Cassidy Lake (NTS 21 H/12E).

HISTORY The deposit was discovered in 1981. After identifying sufficient reserves of high-quality sand, a pilot plant was set up in 1983 for product testing and marketing. Full-scale production began in 1986. In the fall of 1986, the company mined several thousand tonnes of lump silica and sand of various sizes. The lump silica was used in the manufacture of silicon metal and silicon carbide at Becancour, Québec. The company's assets were acquired in 1993 from Baskatong Quartz Ltd. (Sussex Silica Inc.)

RESERVES AND GRADE In the late 1990s, company literature (Atlantic Silica fact sheet, 1997) reports proven reserves of 25 000 000 t of unconsolidated quartz sand and pebbles in association with minor amounts of kaolin clay. The silica approaches 100 % SiO_2, 0.04–0.15% Fe_2O_3; 0.02% CaO; 0.15% Al_2O_3 and trace amounts of TiO_2.

PRODUCTION Existing capacity of the operation is estimated at 100 t/h.

EMPLOYEES An average of 9 persons in 2000.

DEVELOPMENT The company has marketed several specialty products, including sand blasting material; filtration, tree nursery, and decorative sands; and sands used in the manufacture of glass and fibreglass. In 1998, Atlantic began supplying silica for a Sussex-based manufacturer of agglomerated tiles for interior and exterior floor and wall applications.

Chaleur Silica (a Division of The Shaw Group)

COMPANY Chaleur Silica (an operation of Shaw Resources), P.O. Box 60, Shubenacadie, Nova Scotia B0N 2H0. Telephone: (902) 883-2220. FAX: (902) 758-3622. Contact person is Glen Hardie. Website: *www. shawgroupltd.com*

RIGHTS Shaw Group has a 27-acre lease agreement with the landowner.

LOCATION The Bass River silica quarry (Figure 9: 34) is immediately south of Highway 11, approximately 6.5 km east of Bathurst, Gloucester County (NTS 21 P/12E).

HISTORY The property was originally explored by East Coast Smelting and Chemical Company in 1961, but the property remained undeveloped until 1974 when World Wide Explorations opened a small quarry. Purchased by Godin M-E in 1976, the operation was expanded and modernized. It was operated under the name Chaleur Silica Limited until the late 1980s. In 1992, the Shaw Group Limited of Nova Scotia purchased the company, changing the name of the operation to Chaleur Silica.

RESERVES AND GRADE An estimate of reserves is not available for this property. The resource is primarily a quartzose sandstone with an average SiO_2 content of 90%.

PRODUCTION The quarry operates on a seasonal basis. The market depends almost entirely on the sale of silica flux to the Belledune smelter. Annual production is generally between 20 000 and 25 000 t of 0.5 inch minus material.

EMPLOYEES Information is not available but the number is expected to be 2 to 3 seasonal.

DEVELOPMENT Material is excavated at Bass River and crushed and sized in Petit Rocher. Plans are to continue the operation depending on market demand and availability.

Natural Stone

The quarrying and working of stone for various applications, once an important sector of New Brunswick's mining industry, continues to shown signs of a modest revival. Although there are several companies supplying stone products in the province, only a few actually quarry and process local stone. Both granite and sandstone are worked on demand.

The New Brunswick stone industry today bears no resemblance to that of former decades. Nonetheless, a few companies continue to quarry stone generally on demand in the southern part of the Province, shaping it into monuments, curbing, streetscaping and landscaping stone, stone for new buildings and restoration material. These companies include: Nelson Monuments Ltd. of Sussex, Smith Cut Stone and Quarries Limited of Shediac, Maritime Stone Works Inc. (formerly Bee Stone Company Inc.) of Scoudouc, and Bastarache Stone Quarrie near Notre Dame (Figure 9:35–38).

There is consderable interest being shown in developing flagstone, fieldstone and other natural stone resources throughout the province. For example in southern New Brunswick, near Fredericton, Grand Lake and Hillsborough operations are established to supply quality sandstone flagstone and related products for landscaping and other decorative applications destined for both the local and export markets.

Mineral Aggregate

The production of mineral aggregate from bedrock and granular deposits (sand and gravel) is fairly widespread throughout New Brunswick (Figure 9: 39-45). Because of a shortage and variability of pit-run material from many granular sources and the increasing costs of processing required to meet tighter construction specifications, there is an increasing preference toward the use of bedrock or "crushed rock" as a source aggregate materials.

Dozens of small companies and independent contractors extract sand and gravel and related materials from numerous pits that, with few exceptions, are operated on an intermittent-demand basis. While many operations produce low-specification pit-run or borrow material, several companies produce good quality material from large deposits. These are more permanent operations that lie within economical trucking distance of high-demand urban areas.

The bulk of the province's crushed rock is produced from ten to fifteen quarries; most are strategically situated near higher-demand centres or areas lacking in quality granular materials.

The 1990s have seen an unprecedented amount of highway and related infrastructure construction in New Brunswick. The present focus on upgrading the Province's major highway system(s) has led to considerable interest in locating and developing sources of high-performance mineral aggregate. Such projects have resulted in the establishment of several new strategically positioned pits and quarries at several locations throughout the province.

Apart from meeting increased requirements for the domestic market, the export of mineral aggregate from New Brunswick tidewater locations began in the mid-1990s and continues to gain momentum as a realistic alternative to resource development. Beginning with shipments of sand into the New York area, aggregate export recently has expanded to include bedrock that has been quarried and processed at an industrial park immediately adjacent the port facility at Bayside in southwestern New Brunswick. Combined annual shipments of these materials are probably in the range of 300 000 to 500 000 t and now form a significant part of port traffic at Bayside. Aggregate exports from New Brunswick ports are also being considered by other interests.

HYDROCARBONS

Coal

N.B. Coal Limited

COMPANY N.B. Coal Limited, P.O. Box 520, Minto, New Brunswick E0E 1J0. Telephone: (506) 327-3336. The President is Mr. A. Cormier. The parent company is NB Power.

RIGHTS N.B. Coal Limited holds a Coal Agreement, under the Mining Act, Chapter M-4.1, S.N.,B, 1985, in the Minto–Chipman area.

LOCATION The Minto-Chipman coalfield (Figure 9:46) is approximately 60 km east-northeast of Fredericton (NTS 21 I/4, 21 J/1).

History (For early history see Miscellaneous Report 13, "New Brunswick's Mineral Industry, 1993."

RESERVES Current reserve figure is not known.

PRODUCTION 204 118 t of coal (2000); 272 173 t of coal (1999).

EMPLOYEES 2000-2001, an average of 95 persons, not including approximately 20 contract truckers.

DEVELOPMENTS N.B. Coal Limited operates for eight months each year.

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